

**Chinese and Indian diasporic scholars in Australia:
Report for the Securing Australia's Future
Asia Literacy: Language and Beyond project.**

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EXECUTIVE SUMMARY

The *Survey of Chinese and Indian diasporic scholars in Australia* was undertaken for the *Asia Literacy: Language and Beyond* project. The project was led by Professor Ien Ang, Institute for Culture and Society, University of Western Sydney and the *Asia Literacy: Language and Beyond* Expert Working Group. The project was administered by the *Asia Literacy: Language and Beyond* secretariat under the ACOLA Securing Australia's Future program. The *Survey of Chinese and Indian diasporic scholars in Australia* explored the role that Chinese and Indian diasporic scholars living in Australia play in the promotion of people-to-people links with researchers and communities in China and India, as well as elsewhere.

The research literature regarding diaspora and increased connectivity with scholars in China and India is rich and compelling. China's growth in research investment, publication and participation has been remarkable; while India's growth in research publication and participation has increased substantially in recent years, supporting India's depiction as the "sleeping giant". Chinese and Indian diaspora are spread throughout the world, across all continents. Notwithstanding the important 'identity' issues associated with the concept of, and implications arising from "diaspora" assignation, this includes very large numbers of globally mobile Chinese and Indian scholars. These scholars play a vital role in driving innovation and economic growth, forging international collaborations and improving cross-cultural understanding. In Australia, the resident population of Chinese and Indian immigrants has rapidly increased, and now totals some 387,000 Chinese and 337,000 Indian immigrants (2011). The number of foreign-born scholars (including doctoral candidates) in Australia includes large and growing numbers of scholars from China and India. At the same time, Chinese and Indian international students are vitally important to Australia's export education industry, while the recruitment of the best Chinese and Indian graduating students through "two-step migration" contributes to the flow of international scholars into Australia.

The transnational flows of people and ideas and international scholarly collaborations have grown in recent decades. This growth has been attributed to the rising importance of global phenomena, dispersion of expertise, high cost of major research infrastructure, growth of information communication technology and ease of international travel. Concomitantly, the proportion of the world's collaboratively authored scholarly publications has increased, as has Australia's. In the globalized, knowledge-based world, preliminary concerns regarding "brain drain" have now turned to opportunities to leverage "brain circulation" and "diaspora options". Globally, governments have developed diaspora policy responses spanning economic, knowledge-economy, migration, education and research and development (R&D) considerations. The Australian, Chinese and Indian governments have all recognized the important opportunities presented by expanding people-to-people connectivity and international research collaborations.

The *Asia Literacy: Language and Beyond* secretariat administered the survey in the period July-August, 2014. In total, 244 survey responses were received. The survey respondents were overwhelmingly Australian citizens or permanent residents. The vast majority was born in China (89 respondents) or India (85 respondents). The remaining respondents were born in Australia (11), another Asian country (35), a Pacific country (7), or another country outside the Asia-Pacific region (9).¹ Respondents identified their ethnic and/or cultural backgrounds in various ways, broadly described in most instances as 'Chinese' or 'Indian'. Many respondents elaborated, demonstrating the complexity and layering of ethnicity conceptions spanning geographical, religious and cultural distinctions. The age profile was skewed towards mid- to late-career respondents.

¹ Eight respondents did not identify their country of birth.

The respondents were highly educated, primarily doctoral degree holders, or holders of a postgraduate degree or postgraduate diploma. Respondents' postgraduate qualifications were predominantly obtained from Australia, followed by India and China; however some obtained their postgraduate qualifications from the dominant export education players (the United States, United Kingdom and Canada). Over half of the respondents had stability in their employment arrangements, having employment in a permanent position. The respondents were overwhelmingly employed in a research-intensive position, from a wide disciplinary spread predominantly science and engineering. Many respondents were multilingual. Almost all were fluent in English and many were also fluent either in Indian languages (predominantly Hindi) or Chinese languages (predominantly Putonghua).

The key motivation for scholars of Chinese and Indian origin to travel to Australia was academic interest, that is, to study or to take up an academic/research position. The vast majority of respondents had lived in Australia for a long time (that is, over ten years). Similarly, the vast majority of respondents reported planning on living in Australia for a long period of time. Respondents intending returning to their country of origin were motivated by career advancement, personal or family reasons and quality of life. Better salary and conditions motivated few respondents.

Roughly half (115) of the respondents were collaborating with colleagues in China, and approximately one third (80 respondents) were collaborating with colleagues in India. International collaboration activities predominantly involve respondent mobility (that is, travelling to meet with research colleagues and attend conferences in China and India), or joint research and publication, or activities to facilitate Chinese and Indian colleague international mobility.

Existing people-to-people connections with China- and Indian-based scholars are fundamentally important, as respondents leveraged such relationships to develop international research collaborations. International collaborations grew from shared interests in research, and through efforts of colleagues and scholars themselves through education, work, and personal and family linkages. Collaborations with China-based scholars were longstanding, with many such collaborations of ten years or more standing, while collaborations with India-based scholars were more recent. This is despite the fact that respondents born in India had been living in Australia longer than respondents born in China. Respondents collaborated with scholars in other countries (predominantly the United States, Australia, the United Kingdom and Singapore) only on an occasional basis. The nature of these collaborations was consistent with those with scholars in China and India.

The vast majority agreed that their cultural background and linguistic skills represented advantages in international collaborations. Similarly, the vast majority agreed that international collaboration with scholars in China and India strengthens Australia's relationship with China and India. Whilst not as emphatic, the majority of respondents agreed that their international collaboration results in more successful outcomes for China and India.

However, there exist a number of obstacles to international collaboration. For scholars of Chinese origin this principally includes limitations concerning Australian institutional and governmental resources, capabilities and support. Very few identified as obstacles inadequate support from Chinese institutions or the Chinese government. For scholars of Indian origin this principally includes bureaucratic red-tape in India, lack of interest from Australian institutions, cultural differences, and lack of Australian and Indian government funding.

Respondents overwhelmingly welcomed consultation regarding strategies to enhance international collaborations. Respondent's recommended strategies include: increased funding and incentives; joint research projects, publications and grant applications; conferences, workshops and exchanges; joint doctoral supervision and scholarships; joint course development and delivery; leveraging alumni; bilateral discussions and strengthened networks. A number of respondents stressed the importance of recognising and bridging cultural and linguistic differences, building on the wealth of existing knowledge and expertise, and ensuring mutually beneficial outcomes. Respondents commented on the critical need for Australia to strengthen linkages with Asia, however recommended doing so on the basis of sound financial, cultural and political preparation. International collaborations represent a key strategic plank in Australia's foreign policy; however funding is key to the establishment and success of these international collaborations.

Governments have increasingly recognised that, within the global knowledge economy, diasporic scholars have the potential to make an economic and knowledge-based contribution to both their country of origin, and host country simultaneously. However, the notion of diaspora is contested. This research, and related policy responses are particularly interested in diasporic scholars who have *objective*, *subjective* and *normative* links to their country of origin. Where these three criteria are satisfied, these diasporic scholars potentially have a key role to play in fostering successful international scholarly collaborations. The policy question then is how to develop the conditions that are appropriate for ensuring an enhanced role for diaspora in research collaborations.

Chinese and Indian diasporic scholars already bolster Australia's knowledge economy and international students from China and India contribute substantially to Australia's export education industry and represent a pipeline for research effort through "two step migration". There is potential for these diasporic scholars to make an even greater contribution through supportive government policy and structures. Indeed there is a great deal of interest from Chinese and Indian diasporic scholars in collaboration. For both Chinese and Indian diasporic scholars, in addition to shared research interests which drive international collaborations, diasporic scholars believe that these collaborations strengthen Australia's relationship with China and India, and contribute to more successful outcomes for their country of origin.

However, there are a series of obstacles. For Chinese diasporic scholars, this principally includes limitations concerning Australian institutional and governmental resources, capabilities and support; whereas for Indian diasporic scholars, concerns were foremost with respect to bureaucratic red-tape in India, lack of interest in Australia, cultural differences and lack of Indian and Australian government funding. Policy responses and support structures established to facilitate enhanced international scholarly collaborations should be cognizant of these obstacles.

Much of the current collaborative activity involves physical mobility, along with joint research activity and publication. While international conference attendance and visits are clearly productive and robust forms of international scholarly collaboration, the possibilities for virtual collaborations warrant further investigation and policy support. Finally, policy responses could leverage the distinctive advantages that Chinese and Indian diasporic scholars have in terms of linguistic capacity and cultural understanding to establish and consolidate international scholarly collaborations. Future research could usefully explore the nature of these cultural and linguistic advantages.

INTRODUCTION

The *Survey of Chinese and Indian diasporic scholars in Australia* was undertaken for the *Asia Literacy: Language and Beyond* project. The *Asia Literacy: Language and Beyond* project is seeking to make a critical contribution to an understanding of the depth of Australia's linguistic and inter-cultural competence, which 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.

The project was led by Professor Ien Ang, Institute for Culture and Society, University of Western Sydney and the *Asia Literacy: Language and Beyond* Expert Working Group. The project was administered by the *Asia Literacy: Language and Beyond* secretariat under the ACOLA Securing Australia's Future program. The survey forms one element of broader initiatives aimed at strengthening Asia-Australia relations and increasing Australia's prospects in Asia by improving the way Australia's education system fosters Asia literacy. Australia's future is tied to that of the Asian region, and strengthened Asia-Australia relations, particularly relations with China and India, Asia's "growth engines", is vital.²

The *Survey of Chinese and Indian diasporic scholars in Australia* explored the role that diasporic scholars of Chinese and Indian origin living in Australia play in the promotion of people-to-people links with researchers and communities in China and India, as well as elsewhere. The survey examined the extent to which international collaboration occurs with China- and Indian-based scholars; the actual modes of international collaboration; obstacles to international collaboration; and strategies that might facilitate successful international collaboration.

Chinese and Indian diasporic scholars in Australia: Report for the Securing Australia's Future Asia Literacy: Language and Beyond project explores the research literature spanning transnational flows of scholars, international collaboration, motivations and benefits, 'brain circulation' and government economic, knowledge-economy, migration, economic and research and development (R&D) policy responses, including the 'diaspora option'. The report then provides an account of some Chinese and Indian diasporic scholars' experiences in connecting through international collaborations with scholars based in their country of origin.

METHODOLOGY

The *Survey of Chinese and Indian diasporic scholars in Australia* was developed by the Expert Working Group for the *Asia Literacy: Language and Beyond* project, using SurveyMonkey. The internet-based survey included 53 items (multiple choice and open ended questions, and questions using a 7-point Likert scale). The survey was administered by the *Asia Literacy: Language and Beyond* secretariat in the period July-August 2014. The target population comprised academics, researchers and advanced doctoral students of Chinese and Indian origin living and working in Australia at the time of the survey.

Expert Working Group members sent email invitations to relevant networks and organisations inviting them to distribute the invitation to members of the target population. This included the Learned Academies, research networks of Indian and Chinese scholars, CSIRO and the Asian Studies Association of Australia. The *Asia Literacy: Language and Beyond* secretariat conducted desk research to identify individuals and groups of academics and researchers of Chinese and Indian origin employed at Australian universities. They then distributed email invitations to this pool of potential respondents, who through snowballing techniques also

² Charlton, 2014, p. 66.

forwarded the invitation to others. Emails were also distributed to some advanced doctoral students of Chinese and Indian origin. Research literature was reviewed to provide a framework to explore the experiences of Chinese and Indian scholars with respect to international research collaborations.

In total, 244 survey responses were received. All respondents were self selected, had access to the internet for the purpose of completing the survey, and responded electronically via SurveyMonkey. The methodology adopted does not involve a statistically representative sample of academics and researchers of Chinese and Indian origin/descent in Australia. The survey results are indicative and illustrative only, and are intended to inform the Expert Working Group deliberations.

LITERATURE

THE CONTESTED NOTION OF ‘DIASPORA’

The notion of diaspora is contested, both from a theoretical perspective but more importantly from the perspective of individuals no longer residing in their country of origin. The significance that individuals attach to their country of origin varies enormously. Some are committed to, and remain linked with, their country of origin, while others choose to distance themselves. As such, there is no longer a direct relationship between country of origin and attachment. Rizvi and Lingard (2010) assert that, against a backdrop of globalisation and increasing global mobility:

the assumption that there is a one-to-one relationship between territoriality and citizenship can no longer be sustained. ... The issue is no longer where people are physically located, but what contribution they are able to make to the social, cultural and economic development of the (multiple) countries with which they identify.³

The extent to which individuals choose to contribute to their country of origin is dependent on the significance they attach to this connection. This project was particularly interested in scholars who have objective, subjective and normative links to China and India. These individuals have in their cultural background some *objective* linkage to China or India, recognising that these connections may be refracted by time (for example, generations), and cultural hybridity. These scholars identify *subjectively* with, and value their attachment with their country of origin, while living in their host country, illustrating that ‘people are [now] able to live simultaneously in more than one nation-state and have multiple senses of belonging and affiliation’.⁴ This hybrid or ambiguous identity ‘is not fixed nor tied permanently, but bears the traces of other meanings or discourses’.⁵ Finally, these scholars are *normatively* committed; they are prepared to make a contribution to their country of origin. Where these three criteria are satisfied, these individuals have a key role to play in fostering successful international scholarly collaborations.

In addition to the choices individuals make about attachment to their country of origin, the nature and extent of the contributions made varies enormously. While much attention has been given to the contribution of dispersed individuals in the form of financial remittances and foreign direct investment (FDI), particularly for developing countries, governments have in recent years shifted their focus from “brain drain”, through “brain circulation” to the “diaspora option”. Policy attention has increasingly concentrated on remote mobilization of diaspora – of those who maintain objective, subjective and normative linkages – through social remittances, knowledge transfers and scholarly cooperation. Accordingly, discussion about a coherent diaspora, or a self-contained diaspora, with a consistent set of values, identity, cultural affiliations and contribution is mistaken, and should be respectful of these myriad complexities.

GLOBAL RESEARCH

The global research community comprises approximately seven million researchers, involving research and development (R&D) expenditure totalling some US\$1,000 billion. In addition to established research strength in the United States, Western Europe and East Asia, there has been notable growth in R&D investment and effort in China, India and Brazil.⁶ The Royal Society (2011) sums this up as follows:

³ Rizvi and Lingard, 2010, p. 181.

⁴ Chen, 2014, p. 89.

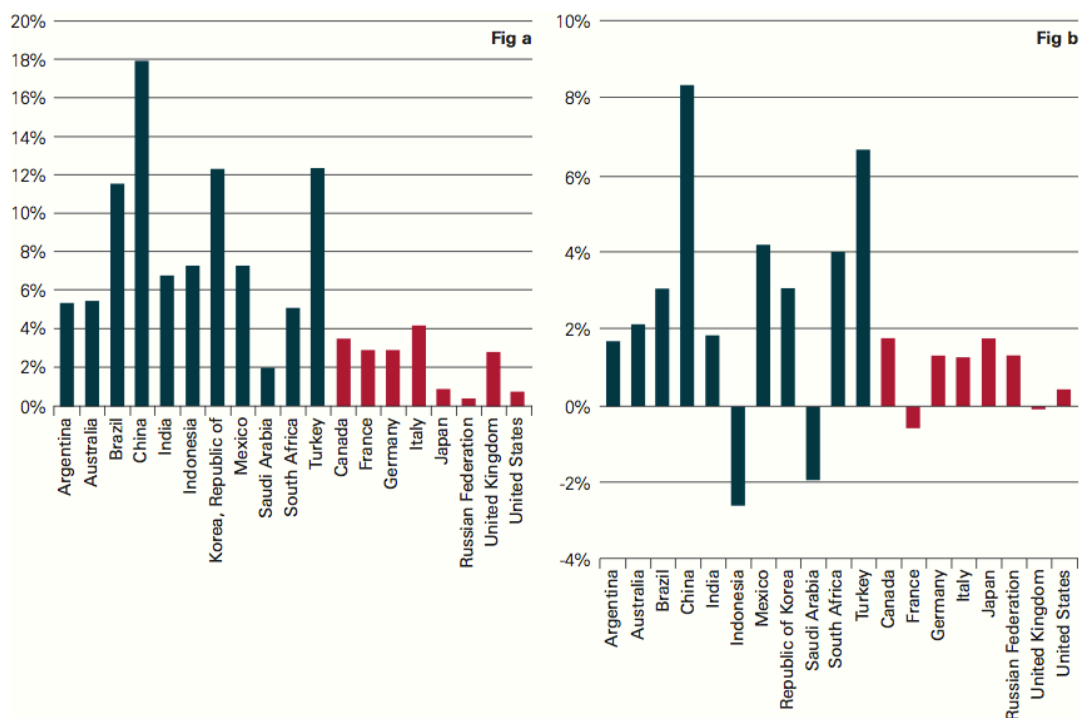
⁵ Chen, and Koyama, 2013, p. 28.

⁶ The Royal Society, 2011.

Science is happening in more places but it remains concentrated. ... The scientific superpowers of the 20th century remain strong, and are being joined by relative newcomers – China, India, Brazil, South Korea and others – who are changing the dynamic of the global science community.⁷

Global growth in research activity and investment can be illustrated by annual growth in publications and gross domestic product (GDP) spending on R&D (Figure 1).

Figure 1: Science in the G20 (Fig a: Annual growth in publications 1996-2008 Fig b: Annual growth in GDP spending on R&D 1996-2007)



Source: The Royal Society, 2011, p. 20.

China’s growth in research publication output and investment has been remarkable. China’s research publication output has surpassed the United Kingdom to take second position with projections of surpassing the United States by 2020.⁸ Gross domestic expenditure on R&D (GERD) has grown rapidly at approximately 20 per cent per annum, making China the second highest investor in R&D globally after the United States. Research intensity nearly doubled from 0.90 per cent in 2000 to 1.77 per cent in 2010.⁹ China’s share of articles in the world’s top 1 per cent of cited articles, considered a proxy for research quality, grew from 0.1 in 2002 to 0.6 in 2012, while the US remained static at 1.7.¹⁰

China’s central government plays a key role in the country’s research system. R&D investment as a proportion of gross domestic product (GDP) is projected to increase from less than 2 per cent in 2012 to 2.5 per cent by 2020.¹¹ China’s higher education sector includes over 100 research universities, and considerable investment is being injected in 50 institutions striving

⁷ The Royal Society, 2011, p. 41.
⁸ Adams, 2010.
⁹ OECD, 2013.
¹⁰ National Science Foundation, 2014a.
¹¹ The State Council of The People’s Republic of China, 2006.

for status as world class universities.¹² In 2014, six universities ranked in the top 200 according to the Shanghai Jiao Tong Academic Ranking of World Universities (ARWU).¹³ Graduate student enrolments have grown from 280,000 in 2000 to 1.6 million in 2011,¹⁴ including rapidly growing numbers of science and engineering doctoral graduates (2,741 in 1994; 31,410 in 2010).¹⁵ Chinese returning with international qualifications (*haigui*)¹⁶ dominate leadership in Chinese higher education institutions.¹⁷

While lagging some other “BRIC”¹⁸ nations in research investment and performance, India’s research publication output has grown substantially in recent years, increasing approximately 80 per cent in the period 2000-2007.¹⁹ The sharp increase in research publication output supports India’s depiction as a “sleeping giant”: ‘it’s research capacity and experience are such that, once moved, it has caught up with other nations in a strikingly brief period’.²⁰ Adams et al. (2009) suggest that ‘if this trajectory continues then India’s productivity will be on a par with most G8 nations within 7-8 years and overtake them between 2015-2012’.²¹ However, India’s R&D intensity only reached 0.81 in 2011,²² well below that of China, and India’s R&D investment as a proportion of GDP is projected to remain static at 0.9 per cent (2012-2014).²³ However, India has attracted significant multinational investment, particularly in information technology related R&D.²⁴

The Indian higher education system is extremely large, comprising 700 universities, 35,500 colleges, 22 million students and approximately 2.5 million science and engineering graduates.²⁵ The number of doctoral graduates has grown from approximately 12,000 in 2002 to 20,000 in 2007.²⁶ Science and engineering doctoral degree recipients have increased over the period 1994 to 2010 from 785 to 2,185.²⁷

In addition to existing research concentrations and growth in the “BRIC” group there is emergent R&D capacity in the Middle East, South-East Asia, North Africa and several smaller European nations.²⁸ As such, a picture is emerging of ‘an increasingly multipolar scientific world, in which the distribution of scientific activity is concentrated in a number of widely dispersed hubs. Beyond these hubs, science is also flourishing’.²⁹

DIASPORA DEMOGRAPHICS

Chinese and Indian diaspora are spread throughout the world, across all continents (Figure 2). The Chinese diaspora has been estimated at some 30 to 40 million, whereas the Indian diaspora has been estimated at some 20 million (2002 figures).³⁰

¹² Altbach and Wang, 2012.

¹³ <http://www.shanghairanking.com/World-University-Rankings-2014/China.html>

¹⁴ Altbach and Wang, 2012.

¹⁵ National Science Foundation, 2014b.

¹⁶ Welch and Hao, 2013.

¹⁷ Cai, 2010.

¹⁸ Brazil, Russia, India and China

¹⁹ Adams, King and Singh, 2009.

²⁰ Adams, King and Singh, 2009, n.p.

²¹ Adams, King and Singh, 2009, n.p.

²² The World Bank, 2014.

²³ Batelle, 2013.

²⁴ Khadria, 2003, p. 3.

²⁵ Bound, 2007.

²⁶ Ministry of Human Resource Development, 2013.

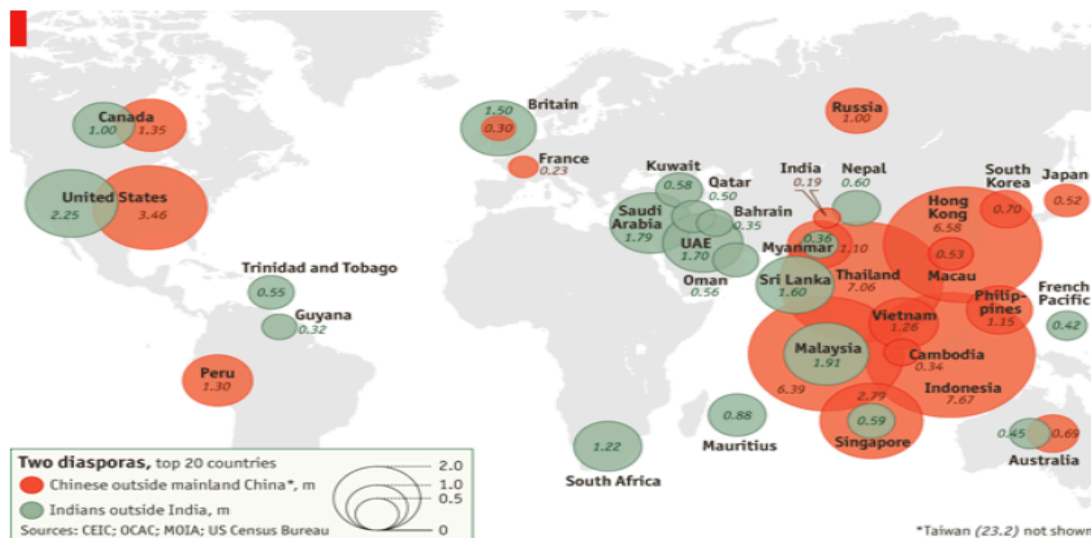
²⁷ National Science Foundation, 2014b.

²⁸ The Royal Society, 2011.

²⁹ The Royal Society, 2011, p. 5.

³⁰ Hugo, 2006.

Figure 2: Top 20 countries for Chinese and Indian diaspora



Source: The Economist, 2011.

This includes an estimated 1 million scholars who left China in the period 1978-2006 of which only 300,000 returned³¹ and very large numbers of Indian scholars and skilled workers³² particularly in the information technology, engineering and health care industries.³³ These globally mobile scholars have been referred to as “knowledge carriers”.³⁴ Diaspora scholars play a vital role in creating innovation: ‘through their collective brainpower, resources, and networks, organized diasporas of scientists, engineers, innovators, entrepreneurs, and science policy experts play a vital role in driving innovation and economic growth and improving cross-cultural understanding and collaboration’.³⁵

Movement of diaspora from China and India to Australia

In 2012, approximately one quarter of the Australian population was born overseas, and a further 20 per cent have at least one overseas-born parent.³⁶ Indeed the proportion of overseas-born in Australia has been consistently 20 per cent or higher since the 1970s.³⁷ As Hugo (2014) observes, ‘Australia is emphatically a country of immigrants’.³⁸

The proportion of people coming from China and India to Australia has been increasing in recent years, with this Chinese and Indian population comprising permanent settlers (increasing from 12.1 per cent in 1996-1997 to 18.2 per cent in 2006-2007), long term visitors (5.8 to 26.1 per cent) and short term visitors (2.0 to 7.6 per cent).³⁹ In addition to representing a larger share, a rapidly increasing number of Chinese and Indians are migrating to Australia, with the resident population of Chinese immigrants increasing from 252,000 in 2006 to

³¹ Zweig et al., 2008.

³² <http://moia.gov.au/accessories.aspx?aid=10>

³³ Chanda and Sreenivasan, 2006.

³⁴ Yang and Welch, 2010.

³⁵ Burns, 2013, n.p.

³⁶ Australian Bureau of Statistics, 2012.

³⁷ Baker, Battiston and Mascitelli, 2007.

³⁸ Hugo, 2014, p. 30.

³⁹ Hugo, 2009. Hugo (2009) defines “permanent movement” as ‘persons migrating to settle in Australia and residents departing permanently’; “long term movement” as: temporary visa holders arriving and residents departing temporarily with the intention to stay in Australia or abroad for twelve months or more, and the departure of temporary visa holders and the return of residents who had stayed in Australia or abroad for twelve months or more’; and “short term movement” as ‘travellers whose intended or actual stay in Australia or abroad is less than twelve months’ (p. 3).

387,400 in 2011, and Indian immigrants increasing from 169,700 in 2006 to 337,100 in 2011 (Table 1).

Table 1: Estimated resident population, state and territory composition – 30 June 2006 and 2011⁴⁰

YEAR	COUNTRY	NSW 000	VIC 000	QLD 000	SA 000	WA 000	TAS 000	NT 000	ACT 000	Aust. 000
2006	China	139.4	68.5	18.4	9.7	10.0	1.2	0.4	4.4	252.0
2011	(excludes SARs & Taiwan)	190.0	112.8	33.2	19.3	20.5	2.3	1.1	8.0	387.4
2006	India	66.7	60.0	12.7	7.6	17.7	1.0	0.8	3.2	169.7
2011		109.1	126.8	34.9	21.0	34.6	1.7	2.4	6.5	337.1

Source: Australian Bureau of Statistics, 2014.

The exponential growth of Chinese and Indian immigrants can be attributed to various factors including the large increases in Chinese and Indian international students during this period, particularly in low Australian Qualifications Framework (AQF) level qualifications;⁴¹ and changes to permanent residency provisions which resulted in large numbers of international students transferring from temporary to permanent residency through “onshore” migration (particularly Chinese students).⁴² This growth has also been attributed to legislative changes allowing dual citizenship in India⁴³ and Australia’s increased immigration intake of skilled migrants, coupled with multiplier effects for incoming family members. The majority of Chinese and Indians migrating to Australia do so through the skilled migration scheme.⁴⁴

Foreign-born scholars in Australia

The international flow of foreign-born researchers (including employed researchers and doctoral students) contributes substantially to most advanced economies’ research effort.⁴⁵ Chinese and Indian⁴⁶ researchers and doctoral students contribute substantially to this international flow.

In Australia, the number of foreign-born researchers has increased rapidly, including researcher long-term visitors (increasing from 1,939 in 1995-1996 to 16,231 in 2011-2012) and researcher permanent settlers (increasing from 3,747 in 1995-1996 to 5,410 in 2011-2012).⁴⁷ While concurrent departures contribute to the continual ‘circularity and reciprocity’ or ‘churn’⁴⁸ in the global community of researchers, it is clear that Australia benefits from net “brain gain”,⁴⁹ rather than “brain drain”.

⁴⁰ The Australian Bureau of Statistics 3412.0 - *Migration, Australia, 2011-12 and 2012-13 Explanatory Notes* state that: ‘According to recommendations of the United Nations an international migrant is defined as “any person who changes his or her country of usual residence” (United Nations 1998). For the purposes of estimating [net overseas migration], and thereby Australia’s official [estimated resident population] counts, a person is regarded as a usual resident if they have been (or expected to be) residing in Australia for a period of 12 months or more over a 16 month period. As such, NOM and ERP estimates include all people, regardless of nationality, citizenship or legal status, who usually live in Australia, with the exception of foreign diplomatic personnel and their families’ (emphasis in original) (n.p.)

⁴¹ Hugo (2009) reports that ‘India and China are now the largest origins for full fee paying foreign students in Australia in a context where the Australian Government has increased the number of programmes whereby foreigners with Australian experience get preference in the immigration programme’ (p. 25).

⁴² Hugo, 2009; Kumar *et al.*, 2009.

⁴³ MOIA, 2013.

⁴⁴ Hugo, 2009.

⁴⁵ For example, in the United States 48 per cent of science and engineering PhDs were awarded to temporary or permanent residents, and approximately two thirds of all postdocs employed in the United States were on temporary visas (Stephan, 2012). In the United Kingdom, over fifty per cent of postgraduate science and engineering university enrolments (2008-2009) were international students (National Science Board, 2012).

⁴⁶ Furukawa *et al.*, 2012.

⁴⁷ Unpublished data, DIAC, cited in Hugo, 2014, p. 34.

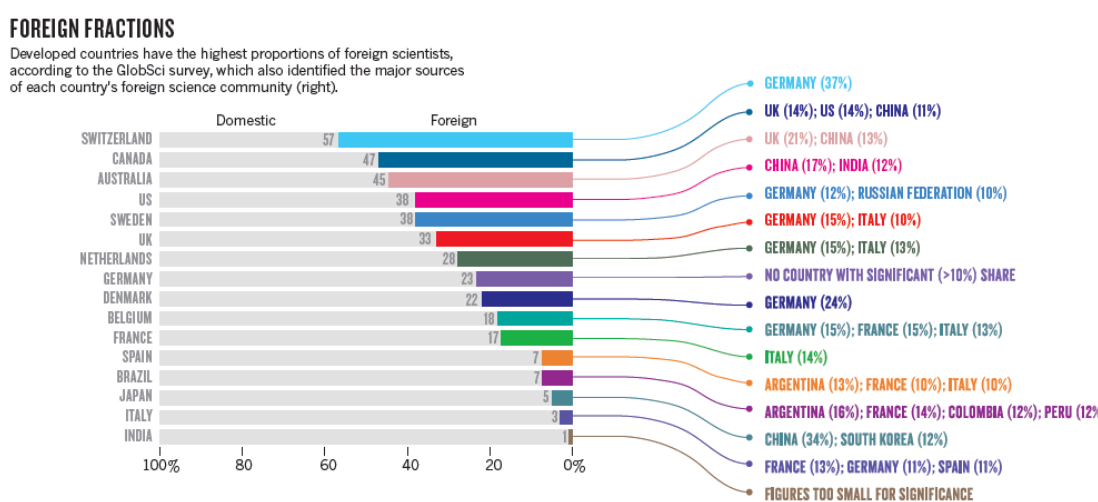
⁴⁸ Hugo, 2014, p. 34.

⁴⁹ Hugo, 2014, p. 38. ‘Brain gain’ refers to ‘attempts, efforts, programs and programs aimed to draw scientific workers to a given country’ (Jałowiecki and Gorzelak, 2004, p. 299).

The “brain drain” phenomenon involved ‘mass and permanent emigration of highly skilled people (researchers, scientists, and even graduate students) [which] took place and proved detrimental for the economic growth and development of their countries of origin’.⁵⁰ Initially, the concept was viewed as problematic primarily for developing countries,⁵¹ as it primarily involved movement from the Global South to the Global North.⁵² Some have suggested that the brain drain phenomenon has moved from “painful” to “gainful” as the benefits for countries of origin – particularly developing countries such as India - are becoming clearer.⁵³

Comparatively, Australia has one of the highest rates of foreign-born scientists, ranking behind Switzerland (56.7 per cent) and Canada (46.9 per cent). The proportion of Australia’s scientists born overseas was estimated at some 44.5 per cent in the GlobSci survey of 17,000 scientists from 16 core countries in 2011 (Figure 3).⁵⁴

Figure 3: Proportion of foreign scientists in selected countries from GlobSci survey (2011)



Source: Van Noorden, 2012, p. 327 based on Franzoni, Scellato and Stephan, 2012.

Australia’s overseas-born researchers have traditionally largely been drawn from Northwest Europe, primarily including the United Kingdom; however in recent years the numbers and proportions of overseas-born researchers recruited to Australia from Asia have grown from 33,619 (34.6 per cent) in 2001, to 43,520 (38.7 per cent) in 2006 (Table 2).

⁵⁰ Horvat, 2004, p. 76).

⁵¹ Kale *et al.*, 2008.

⁵² Rizvi, 2007.

⁵³ Khadria, 2003, p. 5. Khadria (2003) also notes ‘the dichotomy between professional and national/sub-national networks of Indian Diaspora ... [in terms of] their role in education and health sector development in India. Counter-intuitively it is the latter category of Indian diaspora networks, which is trying to play the bigger role of the catalyst, whereas the former has remained more or less subservient to the profession and its members in the host country concerned. The *scientific* diaspora has in this sense remained only a marginal source of energy for India’s potential development in general’ (p. 20).

⁵⁴ Franzoni, Scellato and Stephan, 2012.

Table 2: Australia – Region of birth of overseas-born researchers at 2006 Census

Region of Birth	2001		2006		Percent change 2001-2006
	Number	Percent	Number	Percent	
Oceania and Antarctica other than Australia	8,693	8.9	9,421	8.4	8.37
Northwest Europe	31,061	32.0	32,227	28.7	3.75
Southern and Eastern Europe	9,107	9.4	9,704	8.6	6.56
North Africa and Middle East	3,373	3.5	3,779	3.4	12.04
Southeast Asia	14,577	15.0	17,319	15.4	18.81
Northeast Asia	9,619	9.9	12,006	10.7	24.82
South and Central Asia	9,423	9.7	14,195	12.6	50.64
Americas	6,490	6.7	7,513	6.7	15.76
Sub-Saharan Africa	4,846	5.0	6,257	5.6	29.12
Total	97,189	100.0	112,421	100.0	15.67

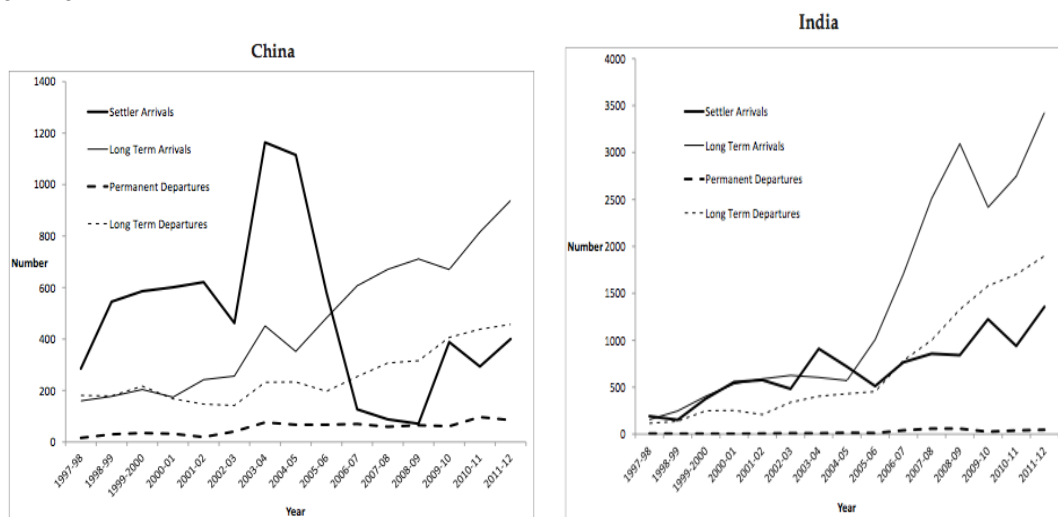
Source: ABS, 2001 and 2006 Censuses, cited in Hugo, 2014, p. 36

This includes increases in the period 2001-2006 of overseas-born researchers from Southeast Asia (18.81 per cent), Northeast Asia (24.82 per cent) and South and Central Asia (50.64 per cent).

Scholars from China and India in Australia

Researchers entering Australia as permanent settlers between 1993-2010 included scholars from China (7,266) and India (5,588),⁵⁵ whereas return researcher migration was minimal: ‘while Asian countries, especially India and China, are major origins of permanent settlers there are only very small flows of researchers in the opposite direction and Australia experiences substantial net migration gains of researchers from these countries’.⁵⁶ The number of Chinese and Indian researchers migrating to Australia has been growing (Figure 4), despite fluctuation at the category level.

Figure 4: Permanent and long-term movement of researchers to and from China and India, 1997-1998 to 2011-2012



Source: Unpublished data, DIAC, from Hugo, 2014, p. 44.

Between 1997-1998 and 2005-2006, permanent arrivals of university lecturers, tutors and researchers from China grew from 384 to 6,264, while long term arrivals also grew from 784 to

⁵⁵ Unpublished data, DIAC, cited in Hugo, 2014, p. 35.

⁵⁶ Hugo, 2014, p. 37.

2,589. Increases were also recorded for Indian permanent arrivals (278 to 4,651) and long term arrivals (207 to 508).⁵⁷ Hugo (2009) notes that some decreases are attributable to Australian university changes to employment contract arrangements (for example, to introduce 457 Temporary Business Visas). The growth trend for permanent and long-term arrivals from China and India is projected to continue, reflecting both the internationalization of the academic labour market and the aging local university academic workforce.⁵⁸

International students

Student mobility is a global phenomenon involving movement South to North, East to West (Australia, North America and Western Europe) and North to North (intra-European).⁵⁹ Majumdar (1994) coined the phrase “semi-finished human capital” to refer to the growing number of internationally mobile students. There are large numbers of Chinese and Indian students studying abroad, including 339,700 Chinese students in 2011 (of whom 186,200 return to China).⁶⁰ In part, this has been attributed to the growing middle class in China and India ‘for whom international education has become a status marker and an object of desire’.⁶¹

Export education policies and programs intersect economic, immigration and international development policy. Globally, export education policies are shaped by various objectives:

- the desire to get ready for the “knowledge economy”, competing for the pole position in the run for brains;
- ... restrictive immigration policy when it comes to low-skilled workers; and
- helping countries of origin with the education of their nationals, in a gesture of international solidarity.⁶²

In addition to export education policies focused on the period of the international students’ enrolment, many countries have established initiatives to encourage the retention of the best international students following completion of their studies⁶³ through “two-steps migration”: firstly, recruiting international students, then secondly, retaining graduates as skilled workers.⁶⁴ Many international students do not return to their country of origin. For example approximately 70 per cent of the Chinese international students (1978-2006) did not return to China following completion of their studies.⁶⁵ Many international students in Australia seek permanent residency following graduation.

Australia’s export education industry has witnessed an exponential increase in the number of international students since the 1990s.⁶⁶ However, in recent years the number of higher education students has declined somewhat, from a peak of 242,030 in 2010 to 231,186 in 2013. While the decline appears to have been stemmed in 2014,⁶⁷ the decreases experienced during the period 2010-2013 were attributed in part to decreasing numbers of Indian students. Edwards and van der Brugge (2012) attribute this decline to:

changes to the Australian migration program that weakened the connection between studying in Australia and gaining permanent residency; Strengthening of the Australian

⁵⁷ Hugo, 2009.

⁵⁸ Hugo, 2009.

⁵⁹ Lindberg *et al.*, 2014.

⁶⁰ Australian Education International, 2012b.

⁶¹ Rizvi and Lingard, 2010.

⁶² Kuptsch, 2006, p. 59.

⁶³ Kuptsch, 2006.

⁶⁴ OECD, 2010.

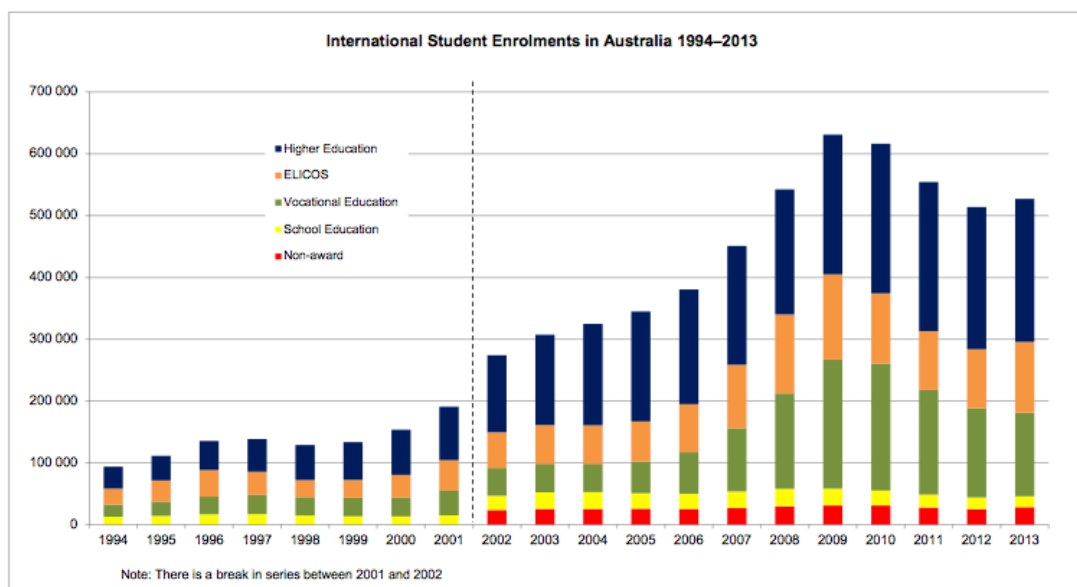
⁶⁵ <http://www.gov.cn> (Chinese government official web portal), cited in The Royal Society, 2011.

⁶⁶ Department of Education, 2014.

⁶⁷ ICEF Monitor, 2014.

dollar; Negative impact on Australian education as a result of violence against international students that gained widespread media attention; Closure of some tertiary providers (mainly in the VET area); [and] Growing competition for international students both from traditional competitors (US, UK, Canada and NZ) as well as from developing nations (n.p).

Figure 5: International student enrolments in Australia 1994-2013 (school education, VET, ELICOS, higher education, non-award)



Source: AEI, 2014, p. 1.

International students now represent 25 per cent of the Australian higher education student population. Chinese and Indian international students represent significant proportions of this market.⁶⁸ In 2013, the total number of international students in Australia included 94,782 students from China⁶⁹ (43,632 males; 51,150 females), and 17,630 students from India (12,171 males; 5,459 females).⁷⁰

Growth in the number of Chinese students in Australia has continued apace and this expansion has been attributed to push factors including perceptions regarding higher education system quality in developed countries,⁷¹ and prospects for migration.⁷² Pull factors influencing choice of destination include costs, safety, prospects for permanent residency and employment.⁷³ Overall growth in the number of Indian international students has been attributed to the lack of capacity in the Indian higher education system, perceived prestige of international higher education qualifications, growing availability of low interest educational loans for middle class parents,⁷⁴ and medium of education (English).⁷⁵ Indian international students are generally from the elite and upper middle classes,⁷⁶ and international education is a key pathway for subsequent migration.⁷⁷

⁶⁸ Department of Immigration and Citizenship, 2012.

⁶⁹ Excluding Hong Kong and Taiwan.

⁷⁰ Department of Education, 2014.

⁷¹ Bodycott, 2009.

⁷² Mazzarol and Soutar, 2002.

⁷³ Lawson, 2011.

⁷⁴ Kumar *et al.*, 2009.

⁷⁵ Khadria, 2003.

⁷⁶ Khadria, 2003.

⁷⁷ Tejada *et al.*, 2014.

International students participate strongly in Australia's research training effort, representing 33 per cent of all doctoral students in 2013.⁷⁸ Participation in doctoral training as an international student represents a mobility mechanism,⁷⁹ which:

inculcates forms of tacit knowledge, sets of technical competences and regimes of theoretical knowledge that underpin disciplines and research fields. International movements by young scientists for research training thus determine to some degree the distribution of knowledge and the transfer of technologies. Where scientists go to train undoubtedly matters.⁸⁰

INTERNATIONAL COLLABORATION

Increasing research collaboration globally

The transnational flow of people and ideas represents a key feature of globalization.⁸¹ Alongside these transnational flows, international collaboration has increased in recent decades,⁸² driven by factors including:

- the growing importance of understanding global phenomena
- the increasing international dispersion of expertise, resources and information
- the costs of major research infrastructure, such that no one nation can build and maintain all the infrastructure it needs to conduct the breadth and depth of research required, and
- the demonstrated benefits of collaboration, in terms of impact, efficiency, knowledge sharing and capacity building, which leverage a country's own science and research expenditure to provide greater return on investment.⁸³

Increasing international collaboration has also been attributed to the development of information technology-based solutions,⁸⁴ growing recognition of the importance of human capital to innovation and breakthroughs⁸⁵ and a resulting 'quest for global talent'.⁸⁶ The imperatives are clear:

Collaboration enhances the quality of scientific research, improves the efficiency and effectiveness of that research, and is increasingly necessary, as the scale of both budgets and research challenges grow. ... Collaboration brings significant benefits, both measurable (such as increased citation impact and access to new markets), and less easily quantifiable outputs, such as broadening research horizons.⁸⁷

The Royal Society (2011) notes the centrality of scholars themselves to research, and international collaboration around research:

... the primary driver of most collaboration is scientists themselves. In developing their research and finding answers, scientists are seeking to work with the best people, institutions and equipment which complement their research, wherever they may be.⁸⁸

⁷⁸ Department of Education, 2014.

⁷⁹ Coe and Bunnell, 2003.

⁸⁰ Turpin *et al.*, 2008, p. 250.

⁸¹ Appadurai, 1996.

⁸² Wagner and Leydesorff, 2005.

⁸³ Department of Industry, Innovation, Science, Research and Tertiary Education, 2012, p. 7.

⁸⁴ Ding *et al.*, 2012.

⁸⁵ Hugo, 2014.

⁸⁶ Kuptsch and Pang, 2006, p. ix.

⁸⁷ The Royal Society, 2011, p. 6.

⁸⁸ The Royal Society, 2011, p. 6.

Growth and ease of international travel and improved telecommunications technology ‘have not only facilitated international movement but made it possible to maintain close, strong, immediate and intimate contacts with origin countries to an extent that has never before been possible’⁸⁹, allowing “continuous virtual return migration”.⁹⁰ For those who have migrated, connections with home countries have diversified, increased, and become ongoing.⁹¹ Turner *et al.* (2003) suggest that international collaborations and innovation networks⁹² reach a point of sustainability ‘when they produce socially recognized, peer-reviewed results and when funding agencies are convinced of their utility as instruments for co-development’.⁹³ As such, publication output and funding represent key pointers to the success and potential longevity of international collaborations.

These collaborations and diaspora knowledge networks can go some way to mitigate the effects of international “brain drain”, particularly on developing countries in the Global South, which have been most affected.⁹⁴ Within this context, scholars can be perceived as pivotal to global people-to-people connections, as they are:

essentially network builders. Throughout their training, career development, and occupational activities, they may move in and out of many countries’ research laboratories, universities and collaborative projects. In doing so, they create research linkages and conduits for knowledge flows that endure long after they have moved on elsewhere. Thus, it is not so much current location ... but rather the places scientists have been and the networks and ‘scientific conduits’ they have laid down in their travels.⁹⁵

International collaboration activity can be quantified in terms of research publication output. Almost all natural science and engineering articles globally involve multiple authors,⁹⁶ and a growing proportion of articles in international journals involve international collaboration, representing an increase from 25 per cent to 35 per cent in the last 15 years⁹⁷ (Figure 6). However, researchers in China and India and other developing countries are collaborating less in terms of research publications than either established or small nations, producing approximately 70 per cent of their research output independent of international authors.⁹⁸ For China, the share of citations that involve an international author decreased over the period 1992 (68.9 per cent) to 2012 (48.7 per cent).⁹⁹

⁸⁹ Hugo, 2014, p. 28.

⁹⁰ Hugo, 2014, p. 28.

⁹¹ Dhesi, 2010. Furthermore, Dhesi (2010) reports that Indian diaspora have been found to contribute ‘to financial resources but also new ideas, modern attitudes and technology (Dhesi, 2008)’ (p. 704).

⁹² Innovation networks involving diaspora have been referred to as Diaspora Knowledge Networks (DKNs) (refer Turner *et al.*, 2003) and Distributed Knowledge Networks (refer OECD, 2002).

⁹³ Turner *et al.*, 2003, p. 14.

⁹⁴ Rizvi, 2007.

⁹⁵ Turpin *et al.*, 2008, p. 248.

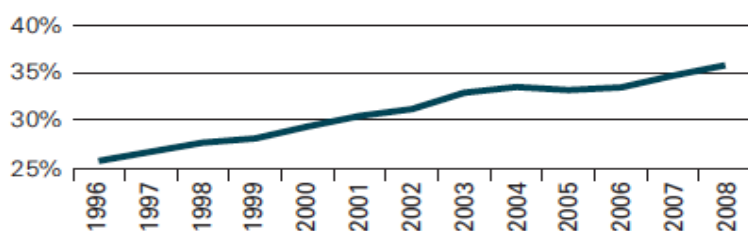
⁹⁶ Lariviere *et al.*, 2006.

⁹⁷ The Royal Society, 2011, p. 6.

⁹⁸ The Royal Society, 2011, p. 47. However, The Royal Society (2011) notes that ‘In China, the overall numbers of international collaborations are growing significantly, but this is simply not keeping pace with the even more dramatic rise in its overall publication productivity’ (p. 47).

⁹⁹ National Science Foundation, 2014c.

Figure 6: Increase in the proportion of the world's papers produced with more than one international author, 1996-2008



Source: The Royal Society, 2011, p. 47 (data from Elsevier's Scopus).

Intensity of internationally collaborative activity varies by country. In Australia, the proportion of natural science and engineering articles involving international collaborations has grown from 13.5 per cent (1980-1985) to 35.4 per cent (1998-2002).¹⁰⁰ Overall, in 2008, 43 per cent of Australia's scientific publications involved international collaboration, compared with 47 per cent in France, 45 per cent in the United Kingdom, 22 per cent in China, and 18 per cent in India.¹⁰¹ However, the prevalence of international collaboration varies by discipline, with more publications in natural science and engineering involving an international author than those produced by scholars in the humanities or social sciences.¹⁰²

Joint publication patterns for Australian scholars have shifted in recent years, with China moving from the eighth ranked international collaborating partner (after the United States, United Kingdom, Germany, Canada, Japan, New Zealand and France) in 2000 to third ranking in 2009 (after the United States and United Kingdom). For Chinese scholars, the position of Australian authors as international collaborators remained static, ranking sixth place throughout this period (after the United States, Japan, United Kingdom, Canada and Germany).¹⁰³

International collaborations involving Indian and Chinese scholars

Several studies have explored the nature of international people-to-people connections involving scholars. Indian and Chinese scholars maintain strong linkages with their homeland, have weekly contact and undertake at least annual visits, such that 'the extent of interaction with India and China is intensive and frequent so the potential for the group to influence their homeland is substantial'.¹⁰⁴ These linkages extend to professional linkages (Table 3).

¹⁰⁰ Lariviere *et al.*, 2006.

¹⁰¹ Department of Industry, Innovation, Science, Research and Tertiary Education, 2012.

¹⁰² Lariviere *et al.*, 2006.

¹⁰³ Department of Industry, Innovation, Science, Research and Tertiary Education, 2012.

¹⁰⁴ Hugo, 2009, p. 21.

Table 3: Survey of Indian and Chinese academics in Australia: Professional linkages maintained with India and China, 2007

Type of linkage	China Per cent (n=239)	India Per cent (n=111)
Visit colleagues in India/China regularly	69.0	73.0
Gave academic papers in India/China	59.5	71.4
Collaborative research with Indian/Chinese scholars	65.6	50.0
Running seminars/courses in India/China	61.0	41.1
Training Indian/Chinese students in Australia	51.5	27.0
Editing a book with an Indian/Chinese scholar	19.5	19.3
Consulting in India/China	24.6	14.0
Have a company that works in India/China	3.9	7.2

Source: Survey 2007 cited in Hugo, 2009, p. 22

Both Chinese and Indian scholars in Australia regularly visit colleagues in China and India, and give academic papers in their country of origin. 65.6 per cent of Chinese, but fewer Indian academics (50 per cent) run collaborative research with counterpart scholars in their country of origin, and more Chinese are involved in professional linkages such as running seminars and courses. Very few scholars have a company that works in their country of origin (3.9 per cent Chinese; 7.2 per cent Indian).

Research regarding Chinese scholars based in the United States and Canada confirms the prevalence of interactions involving the running of seminars or mini-courses in China (United States/Canadian respondents – 49 per cent), and collaborative research projects (United States – 44 per cent; Canada – 38 per cent). Less than one third were involved in training mainland students (United States – 30 per cent; Canada – 32 per cent). Again, very few Chinese academics had a company working in China (5 per cent).¹⁰⁵ The number of interactions increased with position level, with professors having more interactions than either assistant professors, or associate professors.¹⁰⁶ In such international collaborations, Chinese scholars have tactical advantages in both their host county and country of origin as they ‘navigate adroitly among the different regions of family, workplace, and nation-states in order to gain better opportunities for their careers and their families’.¹⁰⁷

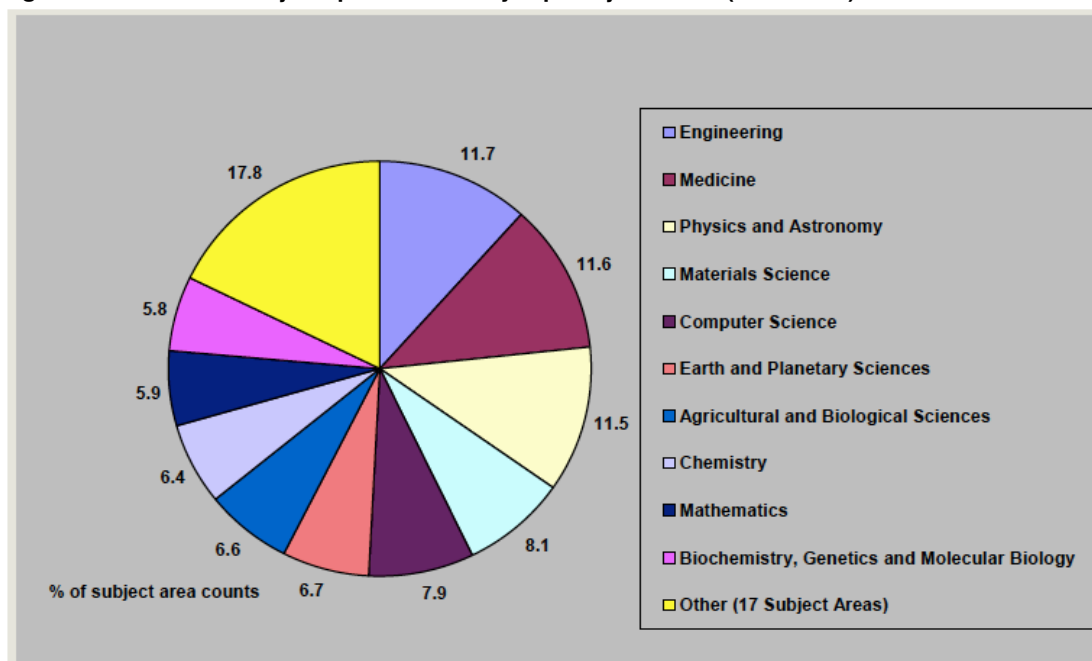
Australia’s record of international collaboration is good, with joint publications involving Australian and Chinese scholars highest in the medical and health, physical, chemical and biological sciences and engineering, but lower in the humanities and social sciences (Figure 7).

¹⁰⁵ Zweig *et al.*, 2008.

¹⁰⁶ Zweig *et al.*, 2008.

¹⁰⁷ Chen, 2014, p. 99.

Figure 7: Distribution of joint publications by top subject areas (2000-2009)



Source: CIE calculations based on InCites TM, Thomson Reuters, 2010 in Department of Industry, Innovation, Science, Research and Tertiary Education, 2012, p. 61.

Joint publications involving Australian scholars and scholars in China increased 20-fold in the period 1996-2009 (from 114 to 2,295), second only to growth recorded for joint publications involving Chinese and Singapore scholars. International collaboration increases, in many cases, citation rates. The citation impacts for joint publications involving Australia and Chinese scholars are higher in more than 60 per cent of subject areas than citation impacts for all Australian publications in those subject areas. The top ten Australian institutions jointly publishing with China include the Group of Eight (G08) universities (Sydney, Queensland, NSW, Melbourne, WA, Monash, ANU) and CSIRO. Curtin University of Technology and the University of Wollongong also have comparatively large numbers of joint publications with scholars in China. In all instances, the numbers of joint publications with scholars in China have grown strongly over the period 2000-2010.¹⁰⁸

MOTIVATIONS AND BENEFITS

Motivations for globally mobile scholars

There are various motivations for scholars to relocate internationally. Principal amongst these are motivations related to research productivity, such as learning new techniques and theories, enlarging research networks and collaborations¹⁰⁹ and progressing new or existing collaborations.¹¹⁰ In the GlobSci survey of 17,000 scientists from 16 core countries in 2011, globally mobile scientists identified their key motivating factors as the “opportunity to improve my future career prospects” and “outstanding faculty, colleagues or research team”. These were followed by “excellence/prestige of the foreign institution in my area of research” and the “opportunity to extend my network of international relationships”.¹¹¹

¹⁰⁸ Department of Industry, Innovation, Science, Research and Tertiary Education, 2012.

¹⁰⁹ Scellato *et al.*, 2012.

¹¹⁰ Harvey, 2008.

¹¹¹ Franzoni, Scellato and Stephan, 2012.

Scholars are also motivated to relocate in response to incentives associated with recognition, curiosity and research freedom.¹¹² Van Noorden (2012)¹¹³ sums these motivations up as follows: ‘a dynamic, well-funded science system seems to trump all other incentives’. Stability with respect to residency permits and permanent employment also influence decisions to settle in host countries.¹¹⁴ Family reasons do not rank highly for scholars moving internationally.¹¹⁵ While motivations linked to increased remuneration and employment conditions motivate some scholars,¹¹⁶ these factors have frequently been ranked lower than those related to research productivity.¹¹⁷ In terms of motivation to return to country of origin, “personal or family reasons” are listed foremost.¹¹⁸

Motivations for globally mobile Indian and Chinese scholars

Motivations for Chinese people moving to the United States include family, political and economic considerations: accessing education generally not available in China, escaping from an unpleasant situation in China, and securing financial support for education purposes. Motivations for Chinese emigrants to remain focus on quality of life, family and political considerations: pursuing a better life, dissatisfaction with their home country’s political system, family and prospects for their children’s future.¹¹⁹ Motivations for Chinese and Indian scholars to migrate to Australia included ‘career advancement/opportunities’ and ‘academic training’, whereas for Indian scholars, ‘standard of living’, ‘education of children’, ‘job opportunities’, ‘research opportunities and funding’ and ‘lifestyle’ all ranked highly.

The most prevalent motivations for Chinese scholars living overseas (in the United States and Canada) to collaborate with scholars in China reflected a desire to “serve China”, including to ‘promote the quality of research in China’, followed by ‘make China stronger’ (Table 4).

Table 4: Reasons selected by overseas mainland scholars for co-operating with China, combining the US and Canada (n=94 US; n=59 Canada)

REASONS FOR COOPERATION	SCORE (points)
Promote the quality of research in China	225
Make China stronger	102
Establish personal relationships	80
Attract good graduate students	70
High quality of collaborators	48
Costs are cheaper	36
I study China, so I need to cooperate	29
I want to be visible on the mainland	18
Access to research money	13
Total	621

Source: Zweig *et al.*, 2008, p. 26.

Note: First choices were given 5 points, second choices were given 3 points, and third choices were given 1 point.

In terms of Indian migrants living overseas, the single most important motivation influencing their decision to return to India related to project or contract completion (in 58 per cent of respondents) followed by wanting to be with family (in 17 per cent of respondents). The most influential element of Indian returnees international experience was the knowledge and skills

¹¹² Stephan and Levin, 1992; Sauermaun and Roach, 2010.

¹¹³ Van Noorden, 2012, p. 329.

¹¹⁴ Tejada *et al.*, 2014.

¹¹⁵ Franzoni, Scellato and Stephan, 2012; Beine, Docquier and Ozden, 2011.

¹¹⁶ Hunter, Oswald & Charlton, 2009.

¹¹⁷ Scellato *et al.*, 2012.

¹¹⁸ Franzoni, Scellato and Stephan, 2012.

¹¹⁹ Pang and Appleton, 2004.

gained overseas (72 per cent of respondents), followed by hands on experience overseas (13 per cent of respondents).¹²⁰

For Chinese scholars in Australia, career opportunities and living/working environments influence choices, frequently including where doctoral studies are undertaken. Chinese scholars valued the lack of *Guanxi* ('the Chinese social and cultural system based on valuing personal relationships').¹²¹ In contrast to older respondents (in their late 40s and 50s), younger responding scholars were more interested in returning to China for career development purposes.¹²²

The respondents in this research reported variations with respect to the location of their international partners. For some Chinese scholars in Australia their international collaborations largely involved colleagues solely in China, whereas for others their collaborations involved Chinese scholars in China, Australia and elsewhere. However international collaborations are not ubiquitous, and others reported few if any collaborations. Barriers to international collaborations with scholars based in China included over-commercialisation, inaccessibility of data, and system stratification in China.¹²³

The increasing number of Chinese returning to China has been attributed to China's rapid economic development, good government policy, good opportunities to develop new technology, and difficulty finding opportunities overseas.¹²⁴ However, the growing number of returnees has not been without difficulty, particularly where preferential policies create tensions between returnees ("*hai gui pai*" or "returning sea turtles faction") and locals ("*tu bie pai*" or "land turtle faction").¹²⁵ Similarly, the number of Indian returnees is increasing. This trend has been attributed to India's expanding information technology industry and improving economy alongside growing unemployment in host countries (particularly the United States).¹²⁶

"BRAIN CIRCULATION"

Emergence of the concept of "brain circulation"

Hugo (2009) asserts that 'in terms of academics and researchers in the diaspora it is their role in transmitting information and in facilitating technology transfer which is most significant'.¹²⁷ Approximately 40 per cent of internationally mobile scholars maintain collaborations with their home country colleagues.¹²⁸

Foreign-born and returnee scholars rank highly in terms of proxy research quality measures; they have larger international research networks, more internationally co-authored publications, and a higher Impact Factor for internationally co-authored publications than native, non-mobile scholars.¹²⁹ Foreign-born scholars also have higher mean citation rates than non-mobile native scholars, or returnees.¹³⁰ For example, nearly half (46.1 per cent) of

¹²⁰ CODEV-EPFL *et al.*, 2013.

¹²¹ Yang and Welch, 2010, p. 5.

¹²² Yang and Welch, 2010.

¹²³ Yang and Welch, 2010.

¹²⁴ Zweig, 2006a, p. 208.

¹²⁵ *Ibid.*

¹²⁶ Chanda and Sreenivasan, 2006.

¹²⁷ Hugo, 2009, p. 21.

¹²⁸ Scellato *et al.*, 2012.

¹²⁹ Scellato *et al.* (2012) found that 'the effect of international collaborations and research quality of foreign-born researchers is driven primarily by migrants who did not get their PhD in the destination country, but rather came for a postdoc position or directly for employment at a university or public research centre in the destination country after doctoral training in another country' (p. 4).

¹³⁰ Franzoni, Scellato and Stephan, 2012.

Australian-based foreign-born scholars in 2011 had an international collaboration with scholars in their country of origin, and in addition to these international linkages, nearly one third (28.25 per cent) of foreign-born researchers collaborate with researchers from their country of origin in their current workplace.¹³¹

The benefits arising from transnational flows of scholars accrue to both the destination country, and country of origin or prior residence through reverse knowledge flows.¹³² Indeed Tejada *et al.* (2014) suggest that ‘migrants who have successfully settled in their host country are in the best position to contribute to the development of their country of origin’.¹³³

In the globalized, knowledge-based world, preliminary discussions regarding “brain drain” have now turned to “brain circulation”, where ‘highly qualified persons are moving among different countries and institutions, thus acquiring, sharing, and spreading their knowledge’.¹³⁴ “Brain circulation” leads to private and collective spillover effects,¹³⁵ supports the movement of highly tacit knowledge, and results in knowledge flows associated with idea generation.¹³⁶ However the extent to which countries of origin benefit varies:

The prospect of reaping potential gains is associated with two groups of factors. The first group are factors related to the individual profiles and social capital of migrants (age, activity profile and type of skills, sector of employment, length of stay abroad, network of contacts, etc.) while the second group includes factors that are related to the structural and institutional context of the countries concerned (infrastructure level, job opportunities and professional prospects, incentive policies for engagement, social inequality, etc.).¹³⁷

Amongst OECD countries, Australia reportedly has the highest “brain gain”.¹³⁸ For international scholars relocating to, and subsequently away from, Australia ‘the period with respect to long term temporary migration ... is one of circularity and complexity although there is an overall gradient toward movement to Australia’.¹³⁹

Chinese and Indian scholars “brain circulation”

The number of Australian residents visiting China and India on a long-term basis, including Chinese and Indian Australian residents, has increased in recent years, albeit much less than the flow to Australia. Short-term visits to China and India similarly have increased in recent years, reflecting growing tourism and economic linkages:

Over the last decade China-born residents of Australia have accounted for more than a third of all short term (less than one year) visits of Australians to China. This is a clear demonstration of the way in which a diaspora can produce increased interaction between origin and destination country. Indeed this interaction is a major factor in the diaspora developing and retaining strong linkages with their homeland. The movers not only include people visiting family and friends in their homeland but also many who maintain strong business and professional interests in China.¹⁴⁰

¹³¹ Scellato *et al.*, 2012.

¹³² Saxenian, 2002.

¹³³ Tejada *et al.*, 2012, p. 40

¹³⁴ Daugeliene and Marcinkeviciene, 2009, p. 55.

¹³⁵ Saxenian, 2005.

¹³⁶ Hargadon and Sutton, 1997; Fleming, 2001.

¹³⁷ Siddiqui and Tejada, 2014, n.p.

¹³⁸ Docquier and Marfouk, 2006.

¹³⁹ Hugo, 2009, p. 9.

¹⁴⁰ Hugo, 2009, p. 11.

Reflecting this “churn”, Hugo (2009) reports that while approximately half of Chinese and Indian scholars surveyed in Australia intend to stay permanently in Australia (47.7 per cent and 54.9 per cent respectively), quite substantial proportions would return to their country of origin if offered a good position (44.2 per cent Chinese and 44.1 per cent Indian respondents).¹⁴¹ Increasingly, skilled Indian migrants are contributing to India through overseas networks, but somewhat less than Chinese migrants.¹⁴²

In addition to return migration, “triangular” migration to a third country has been observed (for example in Canada, this pattern involves movement from ‘Canada, China and the Rest of the World’).¹⁴³ Brain circulation thus involves not only the country of origin and one host, but more countries (hosts) as transnational flows of scholars increase.

GOVERNMENT POLICY, INCLUDING THE “DIASPORA OPTION”

Government policy – various

Governments are also increasingly developing diaspora policy responses spanning economic, knowledge-economy, migration, education and R&D initiatives. Policies include diaspora identification strategies, facilitated return (such as the United Nations Development Programs TOKTEN program)¹⁴⁴, and investment in science.¹⁴⁵ These economic responses recognise the potential contribution of dispersed diaspora in addition to financial remittances¹⁴⁶ and foreign direct investments (FDI), particularly for developing countries. Financial remittances have been extremely important for India and China, with India in receipt of higher financial remittances than any other nation at \$70 billion in 2013, closely followed by China at \$60 billion.¹⁴⁷ Other diaspora economic policy instruments include outsourcing activities, investment funds, diaspora bonds, business/entrepreneurial investments and philanthropy.¹⁴⁸ Many of these policy responses reflect the “diaspora option”, involving ‘their remote mobilization and association to its development’,¹⁴⁹ whereby diaspora play a valuable contribution without physically living in their country of origin. Globally, the World Trade Organisation (WTO) General Agreement on Trade in Services (GATS) specifies conditions regarding the global education trade, including ‘transparency of rules; liberalization of markets; elimination of practices acting as barriers to trade and student mobility; and the development of rules for resolving disputes’.¹⁵⁰

In addition to economic interests, consideration has been given to benefits derived from diaspora, including ‘social remittances, knowledge transfers, investment ventures and the like’.¹⁵¹ Such knowledge-economy interests are driving policy discussions:

At a policy level, a rise in the awareness of the importance of knowledge-based activities in the development process has certainly triggered the interest of home countries to try and involve skilled migrants in various strategies that can lead to a

¹⁴¹ Hugo, 2009.

¹⁴² Chanda and Sreenivasan, 2006.

¹⁴³ Hugo, 2009, p. 24 after DeVoretz, 2005.

¹⁴⁴ TOKTEN is the Transfer of Knowledge Through Expatriate Nationals program.

¹⁴⁵ Nikolic *et al.*, 2010.

¹⁴⁶ The role of financial remittances for developing countries has been explored. For example, Tejada refers to: Ghosh, 2006; Agunias, 2006; de Haas 2005; Acosta *et al.* 2007; Adams 2011).

¹⁴⁷ World Bank, 2014.

¹⁴⁸ Tejada *et al.*, 2014, p. 46.

¹⁴⁹ Meyer and Brown, 1999, n.p.

¹⁵⁰ Rizvi and Lingard, 2010, p. 171.

¹⁵¹ Siddiqui and Tejada, 2014, n.p.

strengthening of their scientific and technological capacities, based on the understanding that they can make long-distance contributions.¹⁵²

Host country diaspora policy responses focused on knowledge exchange have been summarized as follows (Table 5):

Table 5: Overview of host country policies fostering knowledge exchange

NATURE OF POLICY	POSSIBLE MEASURES
1. Migration policies	<ul style="list-style-type: none"> ○ Entry under academic exchange programmes ○ Grant multiple entry visas to skilled migrants, allowing ‘circularity’ ○ ‘Earned adjustment’ of immigration status, towards a more permanent status ○ Allow dual nationality
2. Structural settings (economic, business, R&D, development cooperation)	<ul style="list-style-type: none"> ○ Internationalisation of the academic research community ○ Allow/provide incentives for joint ventures (e.g. between returned migrants and their former host country employers) ○ Encourage international scientific cooperation (e.g. via bilateral agreements/MOUs) ○ Provide funding for academic exchanges (e.g. joint research projects, student and researcher exchanges)

Source: Tejada *et al.*, 2014, p. 49

For example, Germany reformed their migration legislation to facilitate streamlined permanent residency for highly qualified professionals; the Netherlands provides expedited application processes and guaranteed salary for highly skilled migrants via their ‘knowledge-migrant scheme’; and Switzerland’s New Foreign National Act (FNA) regulates the admission of ‘third-country nationals’.¹⁵³ Points of differentiation include the capacity for skilled migrants to stay (short term, long term, permanently) in host countries, dual citizenship arrangements, and preferential treatment of previous in-country work experience and university study. Structural settings can also play a role in promoting transnational flows of scholars including cooperation or bilateral agreements, memorandums of understanding, joint university degrees, linkages, exchanges and doctoral scholarships.

In addition to government policy aimed at increasing transnational flows, regional trade agreements and regional accords can either facilitate or limit the movement of skilled labour across borders.

Abella’s (2006) typology of policies aimed at attracting skilled migrants differentiates between the human capital approach, labour-market needs approach, business incentives approach, and academic-gate approach; the first of which involves attracting established specialists and the latter of which involves offering permanent residence to university graduates. The United States and United Kingdom, for example, use an “academic gate” approach to leverage the reputation of their higher education systems to recruit quality international students and scholars. In terms of the “balance” of policy initiatives targeting the highly-skilled, many countries have moved from migration restrictions to incentives.¹⁵⁴

In addition to single nation-state policies, Chen (2014) suggests that the transnational space ‘has implications for imagining global policies on academic mobility that go beyond the framework of nationalism and support global cooperation for the sake of a better mobilizing of talent and knowledge’ where ‘nation-states need to have the capacity to pursue a broader

¹⁵² Tejada *et al.*, 2014.

¹⁵³ Tejada *et al.*, 2014, p. 51.

¹⁵⁴ Abella, 2006.

international agenda and policies that allow individuals and groups to better achieve their interests, dreams, and aspirations in this growing, interconnected world'.¹⁵⁵

Australian government policy

Australian government immigration policy has supported the flow of highly skilled immigrants for a long time. Hugo (2006) provides an historical overview of Australia's changing immigration policy, from which he states that:

... in Australia, large scale, explicitly skill selective, immigration policies and programmes are more than three decades old. Indeed workforce considerations have been dominant in Australian immigration policy over the entire postwar period. ... Of all OECD nations none has a contemporary population and workforce so influenced by migration.¹⁵⁶

Australian government higher education and R&D policy has recognized the benefits of increasing people-to-people connections, and encouraged increased internationalization and international research collaboration. Since the 1960s initiatives have included international scholar exchanges, collaborations involving agencies, institutions (such as the CSIRO) and universities (such as the connections established between the Group of Eight universities and the China 9 League [C9]).¹⁵⁷ The Australian governments' competitive research grant schemes run by the Australian Research Council (ARC) and National Health and Medical Research Council (NHMRC) have in recent times expanded the capacity to support international research collaboration.¹⁵⁸ Other initiatives include the Endeavour scheme, and mobility programs administered through Australia's learned academies.

Government-to-government agreements promoting diplomatic relations have also been longstanding (for example, the Agreement on Cooperation in Science and Technology was signed in 1980). This agreement supported researcher mobility, workshops and conferences, joint research projects, and establishment of linkages.¹⁵⁹ Subsequently, the Special Fund for Scientific and Technological Cooperation, established in 2000, supported international collaboration with China. The Australia-China Science and Research Fund, established in 2011, supports collaborations. Similar initiatives have been established to nurture relationships with scholars in India. Hugo (2006) recommends that Australian government policy focus on the "four R's" of recruitment and retention of skilled persons, and return and re-engagement of expatriate Australians to benefit Australia in the "knowledge economy".

Chinese and Indian government policy

The Chinese government mobilized embassies to identify overseas-based migrants by establishing professional associations and student associations. The Chinese government also established a range of strategies (including Service Centres for Overseas Study, programs such as the Overseas Talents Serving Country Program, 1,000 Talents Scheme and 111 Project)¹⁶⁰ to encourage scholars to return, and actively encourages the maintenance of strong connections between overseas scholars and the home-country.¹⁶¹ Over time, Chinese government policy has 'changed from "*hui guo fuwu*" (return and serve the motherland) to "*wei guo fuwu*" (serve the

¹⁵⁵ Chen, 2014, pp. 100-101.

¹⁵⁶ Hugo, 2006, p. 107.

¹⁵⁷ Department of Industry, Innovation, Science, Research and Tertiary Education, 2012.

¹⁵⁸ Ford, 2012.

¹⁵⁹ Department of Industry, Innovation, Science, Research and Tertiary Education, 2012, p. 48.

¹⁶⁰ Cai, 2009.

¹⁶¹ Biao, 2006; Wattanavitukul, 2002; Wescott, 2005.

motherland)'.¹⁶² This policy shift now encourages a comprehensive suite of collaborative activities spanning the following:

1. utilize the advantages of their professional bodies;
2. hold concurrent positions in China and overseas;
3. engage in cooperative research in China and abroad;
4. return to China to teach and conduct academic and technical exchanges;
5. set up enterprises in China;
6. conduct inspections and consultations; and
7. engage in intermediary services, such as run conferences, import technology or foreign funds, or help Chinese firms find export markets.¹⁶³

The Chinese government now supports the “diaspora option”¹⁶⁴ whereby expatriates are encouraged to contribute to their country of origin from abroad. The Chinese government encourages overseas-based migrants to contribute towards China’s modernization¹⁶⁵ through investment and scientific development. The Chinese government supports the “double base model” (*liangge jidi moshi*) or “dumb-bell model” whereby Chinese scholars hold joint academic positions or jointly supervise doctoral students.¹⁶⁶ The Chinese government also supports scholars living abroad to return for short term visits to “serve the country”.¹⁶⁷ Chinese universities have also established preferential research funding schemes to attract overseas-based Chinese scholars.¹⁶⁸

The Indian government recognizes the important contribution of diaspora to India’s future development, and established a Ministry of Overseas Indian Affairs,¹⁶⁹ and has reoriented policies towards ‘brain circulation’. The Indian government formally categorizes diaspora as either NRI (non-resident Indian), OCI (Overseas Citizen of India) or PIO (Person of Indian Origin).¹⁷⁰ Indian cities such as Bangalore and Hyderabad have been transformed into high-tech hubs to attract returning immigrants to the Indian information technology industry. The Indian government has reframed legislative provisions governing pharmaceuticals companies, resulting in increasing investment and expansion of this industry sector.¹⁷¹ In addition, many Silicon Valley-based Indians have promoted global networks linking to India.¹⁷²

FINDINGS

The *Survey of Chinese and Indian diasporic scholars in Australia* explored the role that Chinese and Indian diasporic scholars living in Australia play in the promotion of people-to-people links with researchers and communities in China and India, as well as elsewhere. The survey examined the extent to which international collaboration occurs with Chinese and Indian

¹⁶² Wescott, 2005 cited in Hugo, 2009, p. 23.

¹⁶³ Xinhua News Service, 2003, cited in Zweig *et al.*, 2008, p. 11.

¹⁶⁴ The ‘diaspora option’ was coined by Meyer *et al.* (1997). Nikolic *et al.* (2010) define the ‘diaspora option’ as an attempt ‘to devise models of including the [highly qualified] expatriates in the national development schemes without necessarily bringing them back permanently to their countries of origin’ (p. 9). Siddiqui and Tejada (2014) state that ‘The diaspora option views skilled migrants as carriers of social capital that is waiting to be organized and harnessed to the advantage of the home country, leading to the rise of a new agent in development discourse: migrants, diasporas, or transnational communities’ (n.p.).

¹⁶⁵ Daugeliene and Marcinkeviciene, 2009, p. 53. See also Zweig, Fung and Han, 2008.

¹⁶⁶ Zweig *et al.*, 2008.

¹⁶⁷ Zweig, 2006b.

¹⁶⁸ Zweig, 2006b.

¹⁶⁹ Khadria, 2003 reports that ‘a Science & Technology (S&T) Expert Group on the Role of Non Resident Indians (NRIs) and Persons of Indian Origin (PIOs) was constitute under the auspices of the Department of Science & Technology, Government of India in May, 2001. The Expert Group ... (i) reviewed the contributions of Indians abroad to the Indian S&T programs; (ii) scanned the existing mechanisms and schemes that Indians abroad can avail of; and (iii) recommended new avenues and frameworks to network with S&T professionals of Indian Origin abroad (NRI and PIOs) for accelerating India’s excellence in science and technology’ (p. 33).

¹⁷⁰ Dickinson and Bailey 2007.

¹⁷¹ Nikolic *et al.* (2010).

¹⁷² Zweig *et al.*, 2008.

scholars in their home countries; the actual modes of collaboration; obstacles to collaboration; and strategies that might facilitate successful international collaboration. The following section presents the findings of the survey of Chinese and Indian diasporic scholars in Australia conducted in the period July-August, 2014.

SURVEY RESPONDENT'S DEMOGRAPHICS

The survey respondents were overwhelmingly Australian citizens or permanent residents. Nearly half of all respondents reported being a 'passport holder of Australia only' (48 per cent). The remaining respondents included 20 per cent who reported being an 'Australian permanent resident (without citizenship) and other passport(s) holder', 12 per cent 'Australian passport and other passport(s) holder', eight per cent 'passport holder of China only', and six per cent 'passport holder of India only'.¹⁷³

The vast majority were born in China (89 respondents) or India (85 respondents). The remaining respondents were born in Australia (11), another Asian country (35)¹⁷⁴, Fiji (7), the United Kingdom (3), Kenya (2), and one respondent from each of Egypt, Croatia, Germany and The Netherlands. Eight respondents did not identify their country of origin.

Respondents identified their ethnic and/or cultural backgrounds in various ways, predominantly broadly described as 'Chinese' (45 per cent) or 'Indian' (34 per cent), suggesting that for the majority of the respondents identity is less about citizenship than about attachment to homeland, as has been demonstrated in previous research.¹⁷⁵ Smaller numbers of respondents described their ethnic and/or cultural backgrounds as 'Hindu' (8 per cent) or 'ethnic' (5 per cent). Many respondents elaborated, demonstrating the complexity and layering of ethnicity conceptions spanning geographical, religious and cultural distinctions: 'Singapore born of Indian ancestry'; 'Maharashtrian and Konkani, born and raised in Mumbai'; 'Chinese Singaporean, 2.5 generation immigrant from Southern China (Father from China, Mother 2nd generation)'; 'Ethnically Bengali (both parents) Culturally British (born and raised in UK)'; 'Indian Ethnicity and Western Cultural Outlook'; 'Religion: Hindu Mother tongue: Tamil Geographical origin: Tamil Nadu in South India'; and 'Chinese Australian'. Other respondents described their ethnic and/or cultural backgrounds in behavioural terms: 'modest and industrious'; 'friendly, honest, working hard, feeling more than [rational], ethics more than self interest'.

The age profile was skewed towards mid- to late-career respondents, that is, persons aged 36 and over. The largest proportion of respondents (40 per cent) were in the 46-64 years old age group, and a further 29 per cent were in the 36-45 years old age group. Few were less than 24 years old (1 per cent), or aged 25-35 years old (24 per cent), and few were aged 65 years or older (7 per cent). More males (60 per cent) than females responded to the survey.

The respondents were highly educated, predominantly doctoral degree holders (88 per cent), or holders of a postgraduate degree or postgraduate diploma (9 per cent). A small number of respondents were pursuing their PhDs (2) or masters (1). Respondents' postgraduate qualifications were largely obtained from Australia (58 per cent), followed by India (24 per cent) and China (18 per cent). Smaller proportions obtained their postgraduate qualifications from the dominant export education players; that is, the United States (12 per cent), United

¹⁷³ A small proportion of respondents (5 per cent) reported that they were passport holders of another country (including Canada, Malaysia, New Zealand, Fiji, United Kingdom, Taiwan).

¹⁷⁴ This includes respondents born in Malaysia (15), Singapore (8), Taiwan (4), Hong Kong (4) and one respondent each from Japan, Sri Lanka, the Philippines and Indonesia.

¹⁷⁵ Teo, 2011; Chen, 2014.

Kingdom (12 per cent) and Canada (3 per cent).¹⁷⁶ Smaller proportions also obtained postgraduate qualifications from other countries.

Over half of respondents (56 per cent) working in Australia had stability and longevity in their employment arrangements, having employment in a permanent position. However, approximately one third (32 per cent) did not hold a permanent position, and were employed on a long-term contract of 12 months or more. A few respondents (5 per cent) were employed on a short-term contract (less than 12 months), or were self employed (2 per cent). A small number of respondents were in receipt of a higher degree by research scholarship (three respondents), retired or semi-retired (five respondents) or otherwise engaged (three respondents).

The respondents were overwhelmingly employed in a research-intensive position, with the majority (59 per cent) employed in a research and teaching position and a further 29 per cent employed in a research only position (Table 6). The respondents were employed almost entirely by universities (90 per cent) and government research institutions (4 per cent).

Table 6: Current occupation of respondents (n=224)

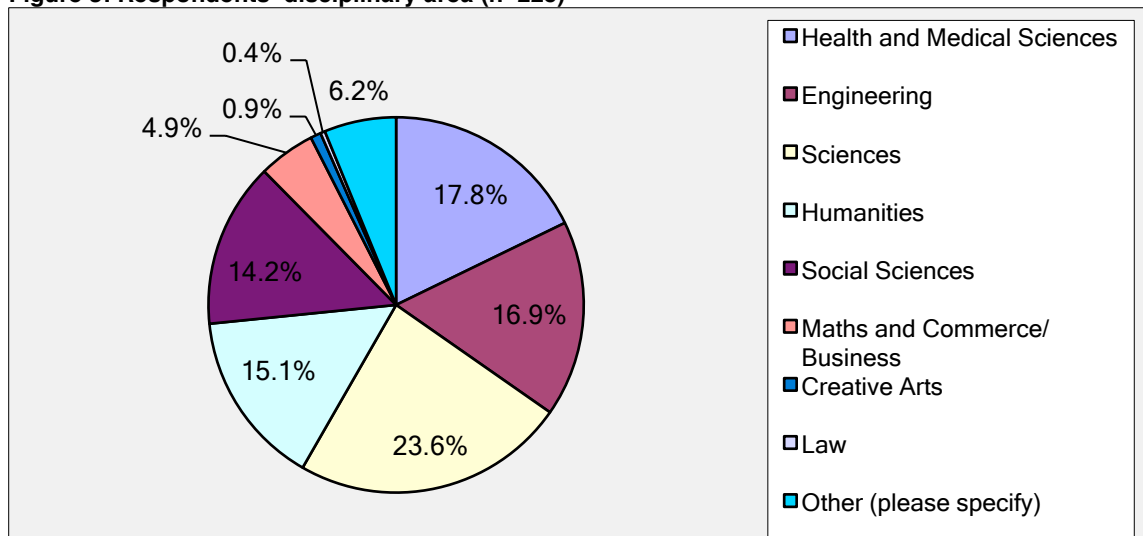
Answers	Response (per cent)	Response (count)
Research and teaching	59%	133
Research only	29%	66
Technical work	5%	11
Teaching only	4%	8
University executive member	3%	6
Retired academic/researcher	3%	6
Administrative work	3%	6
Research management	2%	4
Other	3%	7

The respondents were drawn from a wide disciplinary spread predominantly spanning science (42 per cent) and engineering (17 per cent). More explicitly, this disciplinary spread encompassed sciences (24 per cent) (comprising eight per cent *life sciences*, seven per cent *physical sciences*, four per cent *earth and environmental sciences*, four per cent *chemical sciences* and one per cent *agricultural sciences*), health and medical sciences (18 per cent), engineering (17 per cent), humanities (15 per cent), social sciences (14 per cent) and maths and commerce/business (5 per cent) (

¹⁷⁶ The total proportion adds up to more than 100 as at least some respondents obtained postgraduate qualifications from more than one country.

Figure 8). ‘Other’ disciplines identified by respondents included computer science, economics and linguistics.

Figure 8: Respondents' disciplinary area (n=225)



The survey respondents were invited to nominate three main research interests/themes. This question elicited a diverse range of detailed responses. Text analysis suggests that the main research interests/themes include (in order of frequency): science, engineering, Chinese, health, media, biology, education, materials, management, economics, history, development and philosophy.

Many respondents were multilingual. Almost all respondents were fluent in English (97 per cent) and respondents were also fluent in many other Indian and Chinese languages (Table 7). The dominant Indian language was Hindi (30 per cent) whereas the dominant Chinese language was Putonghua (30 per cent).

Table 7: Respondent's languages (n=225)

Language	Response (per cent)
English	97%
Hindi	30%
Other Indian languages	20%
Tamil	8%
Bengali	6%
Putonghua	30%
Other Chinese languages	21%
Cantonese	12%
Other languages	18%

Other languages reported by respondents included: Mandarin, Malay, Telugu, Dutch, French, Japanese, German, Indonesian and others.

Respondents were asked 'how did you first come to live and work in Australia?' Academic interests represented the foremost reason as the respondents predominantly came to study (35 per cent), to take up an academic/research position (25 per cent) or to take up a postdoctoral position (9 per cent). A small proportion (13 per cent) came to Australia for family reasons (Table 8). Most other respondents reported coming to Australia as migrants ('migrated as child with whole family').

One respondent noted an intermittent path: ‘came to do my PhD and left for India; returned to take up a post doc position; left to live in India; returned to Australia to take up an academic position’. Another came to Australia as a spouse: ‘came to Australia with my husband who came to [do] post doc here’. A couple of respondents reported coming to Australia for ‘conferences and workshops’, and one respondent came as a ‘457 independent executive (dependent)’.

Table 8: Reasons why respondents first came to Australia (n=231)

Answers	Response (per cent)
Came to Australia to study	35%
Came to take up an academic/research position	25%
Family reasons	13%
Came to take up a postdoc in Australia	9%
Other	8%
Came to take up a job other than academic/research	5%
Born in Australia	5%

The vast majority of respondents overall (including those born in China, India, and other countries) had lived in Australia for a long time; over half (57 per cent) reported having lived in Australia for more than ten years, and a further 15 per cent had lived in Australia for between six to ten years. A small proportion reported having lived in Australia their entire life (3 per cent). In contrast to this group of respondents who had lived in Australia for a long time, some respondents had lived in Australia for briefer periods: between three and six years (11 per cent), or less than three years (10 per cent). Very few respondents had lived intermittently in Australia (less than 1 per cent).

Respondents born in India had been living in Australia longer than respondents born in China (Table 9).

Table 9: Length of time respondents born in China or India had lived in Australia (n=231)

RESPONDENTS BORN IN CHINA (n=89)	Number of respondents	Response (per cent)
Less than three years	18	20%
Three to six years	9	10%
Six to ten years	12	13%
More than ten years	48	54%
Entire life	0	0%
Unknown	2	2%
RESPONDENTS BORN IN INDIA (n=85)		
Less than three years	4	5%
Three to six years	10	12%
Six to ten years	15	18%
More than ten years	49	58%
Entire life	1	1%
Unknown or other	6	7%

The vast majority of respondents reported planning on living in Australia for a long period of time. Approximately two thirds of respondents (65 per cent) reported planning to continue living in Australia for the rest of their lives; and a further 10 per cent reported planning to live in Australia for more than ten years. A few (3 per cent) planned to live in Australia intermittently. Respondents who did not specify a time period (9 per cent; 20 respondents) reported that their future plans either depended on employment (‘depends on whether interesting work opportunities arise’; ‘depends on whether my work will be appreciated by my

employer'), had indefinite plans or were unsure ('unknown at the moment'). One respondent reported intending to spend 'half the time in Australia and the other half in India'.

For those respondents not intending remaining in Australia indefinitely (52 respondents), the 'pull' of their country of origin (as opposed to other countries) remained strong. Most such respondents (33 respondents) reported intending to return to their country of origin: China (15 respondents) and India (18 respondents). Respondents also reported intending to relocate elsewhere in Asia (seven respondents), the United Kingdom (five respondents), the United States (five respondents), Canada (one respondent) and New Zealand (one respondent). Two respondents indicated that their next move depended on career opportunities, while a number of respondents (ten) intent on leaving Australia were unsure of their next destination.

For those intending leaving Australia, the most important reasons for wanting to move to their intended location included career advancement (66 per cent), personal or family reasons (44 per cent) and better quality of life (41 per cent) (Table 10).

Table 10: Reasons for leaving Australia to move elsewhere (n=122)

Answers	Response (per cent)
Opportunity to advance my career	66%
Personal or family reasons	44%
Better quality of life	41%
Research infrastructure, including funding opportunities	34%
To contribute to the development of my home country	26%
Opportunity to expand my international network	20%
Prestige of research institutions there	17%
Better salary or conditions of employment	16%
Outstanding colleagues or research teams	15%

Note: As respondents were invited to identify the three most important reasons the percentages do not add up to 100.

Approximately one third (34 per cent) indicated an intention to move for reasons related to research infrastructure, including funding opportunities. Despite many such respondents indicating that they would leave Australia and return to their home country, only approximately one quarter (26 per cent) identified 'contribution to the development of their home country' as the principal reason. Better salary and conditions of employment motivated only a small proportion of respondents (16 per cent) to move away from Australia.

COLLABORATIONS WITH SCHOLARS IN CHINA

Overall, the majority of respondents (80 per cent) reported that their work *did not* focus on *Chinese issues*. Respondents that *did* focus on *Chinese issues* included more Chinese than Indian respondents (25 per cent and 10 per cent respectively) (Table 11). Two thirds of Chinese respondents (67 per cent) engaged with, or collaborated with colleagues in *China*, while fewer Indian respondents did (26 per cent) (Table 16).

Table 11: Focus on Chinese issues, and engagement with colleagues in China (n=223)

Country of origin and ethnic background*	Does your work focus on Chinese issues?	Do you engage with or collaborate with colleagues in China?
CHINA (n=122)		
No	70%	28%
Yes	25%	67%
No response	5%	5%
INDIA (n=101)		
No	83%	66%
Yes	10%	26%
No response	7%	8%

* Respondents were categorized based on both their country of birth and self-identified ethnic background. Respondents not able to be categorized or not responding to this question were excluded from this analysis.

Respondents who do engage or collaborate with colleagues in China undertake a wide ranging, rich assortment of interactions predominantly including respondent mobility, joint research and publications, and activities to facilitate colleague international mobility (Table 12). Approximately two thirds of such respondents attend conferences in China (67 per cent) or visit research colleagues in China (66 per cent). Over half conduct research jointly with colleagues in China (59 per cent), and co-author research papers with colleagues in China (59 per cent). Slightly less than half facilitate research collaborations involving colleagues in China visiting Australia (47 per cent), or colleagues in Australia collaborating with scholars in China (47 per cent). Chinese scholars in Australia were also involved in training Chinese students in Australia (46 per cent).

Table 12: Professional activities Australian-based scholars are engaged in when collaborating with colleagues in China (n=113)

Answers	Response (per cent)
Attend conferences in China	67%
Visit research colleagues in China	66%
Conduct research jointly with colleagues in China	59%
Co-author research papers with colleagues in China	59%
Facilitate research colleagues from China to visit Australia	47%
Facilitate collaboration between Australian researchers and researchers in China	47%
Train Chinese students in Australia	46%
Facilitate Australian research colleagues to visit China	29%
Work with a university or tertiary education/research institution in China	27%
Co-author or co-edit books with colleagues in China	20%
Participate on research assessment panels of Chinese institutions	16%
Engage in consultancy work in China	12%
Work with a governmental organisation in China (non-university)	9%
Teach a course at an institution in China	7%
Train Australian students in China	6%
Other	5%
Work with a non-governmental organisation in China (non-university)	4%

Fewer respondents were involved with interactions whereby they would be based in China, such as working with a China-based university, research or government organization (27 per cent and 9 per cent respectively), or consulting or teaching in China (12 per cent and 7 per cent

respectively). This range of professional activities is conducted in various locations in China, including Shanghai, Nanjing, Hong Kong, Guangzhou, Hangzhou, Wuhan, Chengdu and Xi'an.

Existing relationships with China-based scholars are fundamentally important to international collaborations. In choosing the particular institutions or scholars to collaborate with in China, the respondents leveraged an existing relationship (80 per cent), collaborated with others who approached them (31 per cent), went through a colleague in China (28 per cent), or through a colleague in Australia (21 per cent) (Table 13). Few respondents (13 per cent) approached scholars in China directly. Others networked through conferences, alumni networks, and industry partners or worked directly in China.

Table 13: How respondents chose the particular institution(s) or researcher(s) to collaborate with in China (n=109)

Answers	Response (per cent)	Response Count
An existing relationship	80%	87
They approached me	31%	34
Through a colleague in China	28%	31
Through a colleague in Australia	21%	23
I approached them	13%	14
Other	6%	6

Many of these international research collaborations were longstanding; nearly half were either 'more than ten years' (33 per cent), or 'four to six years' (16 per cent). However, some scholars had only relatively recently commenced working collaboratively with scholars based in China, with 32 per cent reporting the length of their collaborations as 'between one to three years'.

International collaborations were developed in many ways ranging from shared interests in research, to people-to-people connections made through colleagues and scholars themselves through education, work, and personal and family linkages. Respondents predominantly reported that such international collaborations developed through shared interests in research (62 per cent) (Table 14).

Table 14: How respondents developed their collaborative network with colleagues in China (n=110)

Answers	Response (per cent)
Shared interests in research	62%
Put into contact by other colleagues	33%
Postgraduate links	31%
Through former or current place of work	31%
Personal or family links	30%
Postdoctoral links	15%
Undergraduate links	15%
Consultancy work	8%
Contacts/networking facilitated by Chinese Embassy in Australia	4%
Other	4%

Approximately one third reported that these international collaborations emerged through contacts established by other colleagues (33 per cent), postgraduate links (31 per cent), former or current places of work (31 per cent), or personal or family links (30 per cent). Very few such international collaborations (4 per cent) were facilitated by the Chinese Embassy in Australia.

The vast majority of respondents (79 per cent) agreed that their cultural background made it easier to work with colleagues in China.¹⁷⁷ Few disagreed (5 per cent). Similarly, the majority (69 per cent)¹⁷⁸ agreed that their linguistic skills are an important asset in establishing connections with colleagues in China, although a higher proportion (21 per cent) disagreed.

The vast majority of respondents (83 per cent) agreed that their international collaboration with scholars in China strengthens Australia’s relationship with China.¹⁷⁹ One respondent commented:

Dissemination of my work assists Australian academics and University-trained students to understand Chinese thought in a much more intimate and realistic way.

While very few (2 per cent) disagreed, a not insubstantial proportion (15 per cent) reported being unsure.

Whilst not as emphatic, the majority of respondents (69 per cent) agreed that their collaboration with scholars in China results in more successful outcomes for China.¹⁸⁰ One respondent commented:

My work uses the analytic style of western philosophy – known for its methodological rigour – and this assists researchers in China to understand approaches and methodologies in western thought.

Again, very few disagreed (3 per cent) while a sizeable proportion were unsure (29 per cent).

There are a number of obstacles to conducting research collaboratively with partners located in China (Table 15), principally including limitations concerning Australian institutional and governmental resources, capabilities and support. Over half of all respondents with international collaborations with partners located in China identified inadequate resources or capabilities at Australian institutions (51 per cent), while 42 per cent identified inadequate support from the Australian government.

Table 15: Key obstacles to collaborating across Australia and China (n=110)

Answers	Response (per cent)
Inadequate resources or capabilities at Australian institutions	51%
Inadequate support from Australian government	42%
Differing research/workplace cultures	29%
Bureaucratic red-tape in China	27%
Lack of interest from Australian institutions	26%
Bureaucratic red-tape in Australia	25%
Differing expectations of research products	24%
Differing community expectations and cultures	23%
Inadequate familiarity with languages	15%
Inadequate resources or capabilities at Chinese institutions	13%
Inadequate support from Chinese government	12%
Lack of interest from Chinese institutions	9%
Other	5%

¹⁷⁷ 47 per cent strongly agreed; 32 per cent agreed (79 per cent).

¹⁷⁸ 50 per cent strongly agreed; 19 per cent agreed (69 per cent).

¹⁷⁹ 46 per cent strongly agreed; 37 per cent agreed (83 per cent).

¹⁸⁰ 28 per cent strongly agreed; 41 per cent agreed (69 per cent).

More than a quarter of respondents identified the differing research/workplace cultures (29 per cent), and bureaucratic red-tape in China (27 per cent). Slightly fewer respondents identified the lack of interest from Australian institutions (26 per cent), or bureaucratic red-tape in Australia (25 per cent). Very few identified as obstacles inadequate resources, capabilities, support or interest from Chinese institutions and the Chinese government. One respondent commented at length about obstacles to international collaborations involving scholars in China and Australia, noting the following:

China officially does not permit export of biological samples to Australia, although they do operate the largest commercial genotyping industry in the world which imports biological samples from around the world. ... Chinese researchers do not share data much at all - nearly all publicly funded European data (and most Australian) is freely available in public databases, and is widely used by Chinese researchers. Again, this is inconsistent and holds back Chinese research. Funding from Australian government for partnership with Chinese researchers is laughably small - indeed it is well known in China how trivial the Australian government's commitment to partnering with Chinese science is.

Another respondent commented on the influence of political differences on international collaborations:

Australia is very anti-communist and anglo-centric. Anything British is considered to serve Australia's national interest but it is hard to justify research on China in terms of Australia's national interest.

Another respondent commented on the perceived level of independence of collaborating scholars in China:

Suspicion of some Australian academics about the independence of research from governmental requirements.

Respondents overwhelmingly agreed (85 per cent)¹⁸¹ with the statement that 'Australian research institutions should consult more with diaspora Chinese scholars if they wish to develop research collaborations with China'. Accordingly, many respondents recommended strategies whereby scholars based in Australia could facilitate better collaboration with scholars in China.

Many respondents recommended increased funding and incentives for Australia-China collaborative research:

Co-funding from both government[s].

More funding from Australian government.

More incentives for collaborative research.

However, one respondent cautioned against viewing China simply in terms of revenue generation, calling for international collaborations to be high quality:

More research funds should be made available ... Australian research institutions should be serious in developing collaborations with China. China should not be seen as a milk

¹⁸¹ 47 per cent strongly agreed; 38 per cent agreed (85 per cent).

cow for revenue generation. Collaborative programs with China have to be of high quality.

With respect to funding, one respondent noted that Chinese scholars (in the engineering discipline at least) had access to large-scale research funding:

It is important to be aware of the academic and funding system in China. For example, the more [hierarchic] academic system, paper authorship requirements, what can [be] given funding, what is actually funded. Chinese researchers now receive huge funds to undertake research [on a] very large [scale] which might not be feasible in the Australian setting. Researchers based in Australia can think of ways to complement such large scale research.

Many respondents recommended specific collaborative initiatives:

Facilitate exchanges of researchers between the two countries.

Joint research projects of mutual interests.

Joint publications and grant applications.

Through links with Chinese student alumni who have returned to China.

Chinese scholars can organise or help to organise academic visits to Chinese universities and research institutes, with direct contact with researchers themselves. At the beginning, the [delegation] should be small (e.g., 3-5 people). This way, it is easier to match people of similar research interests from both sides. When this direct research collaboration is established, the next step will be institutional collaboration in both research and teaching.

Support graduate studentships.

Through conferences, workshops and master classes; jointly funded research projects; joint PhD supervisions.

Strengthen networks; inform us of contacts/personalities.

A number of respondents stressed the importance of recognizing cultural and linguistic differences:

[B]ridge cultural gaps and break language barriers.

Cultural insights and executive experiences and updated in-country understanding and flexible expectations and strategies.

Explain the education system and cultural expectations.

One respondent recommended recognition of Chinese scholars' contribution in Australia:

Australian employers should better recognise diasporic Chinese scholars as assets.

Finally, one respondent commented on the importance of currency:

Most Chinese scholars who have been in Australia for 15 years or more are out of touch with the new China of today. They may be of help if they are well integrated into Australian culture, have continuing contact with China, and can provide cultural insights into the Chinese work culture, comparing and contrasting with Australian culture and mores.

COLLABORATIONS WITH SCHOLARS IN INDIA

The majority of all respondents reported that their work *did not* focus on *Indian issues* (78 per cent). Respondents that *did* focus on *Indian issues* included more Indian respondents (41 per cent), than Chinese respondents (4 per cent) (Table 16). The proportion of Indian respondents working on *Indian issues* (that is, 41 per cent) was much higher than the proportion of Chinese respondents working on *Chinese issues* (25 per cent; see Table 11). 60 per cent of Indian respondents engaged with, or collaborated with colleagues in India, in comparison to much fewer Chinese respondents that engaged with, or collaborated with colleagues in India (11 per cent) (Table 16).

Table 16: Focus on Indian issues, and engagement with colleagues in India (n=223)

Country of origin and ethnic background*	Does your work focus on Indian issues?	Do you engage with or collaborate with colleagues in India?
CHINA (n=122)		
No	86%	79%
Yes	4%	11%
No response	10%	10%
INDIA (n=101)		
No	52%	33%
Yes	41%	60%
No response	7%	7%

* Respondents were categorized based on both their country of birth and self-identified ethnic background. Respondents not able to be categorized or not responding to this question were excluded from this analysis.

Respondents that did collaborate with scholars in India did so predominantly by visiting India to meet with research colleagues (74 per cent), or attending conferences (70 per cent). Respondents involved in international collaborations also conducted research jointly with colleagues in India (59 per cent), facilitated the movement of colleagues from India to visit Australia (45 per cent), and co-authored research papers with colleagues in India (45 per cent) (Table 17).

Table 17: Professional activities Australian-based scholars are engaged in when collaborating with colleagues in India (n=76)

Answers	Response (per cent)
Visit research colleagues in India	74%
Attend conferences in India	70%
Conduct research jointly with colleagues in India	59%
Facilitate research colleagues from India to visit Australia	45%
Co-author research papers with colleagues in India	45%
Facilitate collaboration between Australian researchers and researchers in India	37%
Work with a university or tertiary education/research institution in India	29%
Train Indian students in Australia	28%
Facilitate Australian research colleagues to visit India	23%
Teach a course at an institution in India	21%
Co-author or co-edit books with colleagues in India	17%
Participate on research assessment panels of Indian institutions	12%
Engage in consultancy work in India	9%
Work with a governmental organisation in India (non-university)	9%
Train Australian students in India	7%
Work with a non-governmental organisation in India (non-university)	7%
Other	7%

Again fewer Australian-based scholars participated in collaborative activities that involved being based in India, such as working with a consultancy or government organization in India (9 per cent), training Australian students in India (7 per cent), or working with a non-governmental organization in India (7 per cent). Collaborative research activities are conducted in various locations in India, including Delhi, Mumbai, Bangalore, Chennai, Pune, Calcutta, Hyderabad and Manipal.

As is the case for respondents collaborating with China-based scholars, existing relationships are key to international collaborations with Indian-based scholars. In choosing the particular institutions or scholars to collaborate with in India, the respondents leveraged an existing relationship (77 per cent), collaborated with others who approached them (33 per cent), went through a colleague in India (31 per cent), or approached scholars in India directly (23 per cent) (Table 18). Few scholars chose a particular Indian institution or scholar through a colleague in Australia (16 per cent). Respondents also chose collaborators through meetings at conferences or Indian research academies, or through contacts established via Indian colleagues in other countries.

Table 18: How respondents chose the particular institution(s) or researcher(s) to collaborate with in India (n = 75)

Answers	Response (per cent)	Response Count
An existing relationship	77%	58
They approached me	33%	25
Through a colleague in India	31%	23
I approached them	23%	17
Through a colleague in Australia	16%	12
Other	4%	3

Collaborations involving Indian-based scholars were newer than those involving China-based scholars. 30 per cent of the respondents with an international collaboration involving scholars in India had worked collaboratively for between four to six years, and a further 23 per cent

from one to three years. Fewer had longer term collaborations (21 per cent – ‘more than ten years’; 15 per cent – ‘seven to ten years’).

International collaborations with scholars in India were developed in many ways, with shared interests and postgraduate training formative for longer-term research collaborations. Respondents predominantly reported that such international collaborations developed through shared interests in research (63 per cent), while nearly half (45 per cent) resulted from postgraduate links. International collaborations also emerged through people-to-people links established through former or current places of work (31 per cent), by being put into contact with other colleagues (27 per cent), or by personal or family links (27 per cent) (Table 19).

Table 19: How respondents developed their collaborative network with colleagues in India (n=75)

Answers	Response (per cent)
Shared interests in research	63%
Postgraduate links	45%
Through former or current place of work	31%
Put into contact by other colleagues	27%
Personal or family links	27%
Undergraduate links	13%
Other	13%
Postdoctoral links	12%
Consultancy work	7%
Contacts/networking facilitated by Indian High Commission in Australia	3%

Linkages established through undergraduate education and postdoctoral links (13 per cent; 12 per cent respectively) played a role in only a small proportion of instances. Again few such international collaborative networks were established through contacts or networking facilitated by the Indian High Commission in Australia (3 per cent). A couple of respondents reported that these international collaborations grew from an Australian Academy of Science initiative.

The vast majority of respondents (85 per cent)¹⁸² agreed that their cultural background made it easier to work with colleagues in India. The majority (66 per cent)¹⁸³ also agreed that their linguistic skills are an important asset in establishing connections with colleagues in India, although many either disagreed (21 per cent) or were unsure (14 per cent).

The vast majority of respondents (84 per cent)¹⁸⁴ agreed that their collaboration with scholars in India *strengthens Australia's relationship* with India. While only one respondent disagreed, a small proportion (15 per cent) reported being unsure. One respondent, strongly supportive of this proposition, commented:

Especially academy-academy contact. Scientific collaboration is a potent foreign policy tool.

¹⁸² 54 per cent strongly agreed; 31 per cent agreed (85 per cent).

¹⁸³ 42 per cent strongly agreed; 23 per cent agreed. The summed proportion without rounding is 65.76 per cent (and reported as 66 per cent, above).

¹⁸⁴ 49 per cent strongly agreed; 34 per cent agreed. The summed proportion without rounding is 83.57 per cent (and reported as 84 per cent, above)

Further, the majority of respondents (66 per cent) agreed that their collaboration with scholars in India *results in more successful outcomes for India*.¹⁸⁵ While only two respondents disagreed, a sizeable proportion were unsure (32 per cent), perhaps reflecting the recent emergence of many such collaborations. One respondent commented:

My collaboration has great potential for successful outcomes for India, however it is early days yet.

Respondents identified key obstacles to international collaborations involving Australian- and Indian-based scholars, including bureaucratic red-tape in India, lack of interest in Australia, cultural differences and lack of government funding (Table 20). Over half identified bureaucratic red-tape in India (51 per cent), while 41 per cent identified lack of interest from Australian institutions and 40 per cent identified differing research/workplace cultures. Inadequate government support was identified by respondents as a key obstacle to international collaborations, including inadequate support from the Australian government (38 per cent), and inadequate support from the Indian government (37 per cent).

Table 20: Key obstacles to collaborating across Australia and India (n=73)

Answers	Response (per cent)
Bureaucratic red-tape in India	51%
Lack of interest from Australian institutions	41%
Differing research/workplace cultures	40%
Inadequate support from Australian government	38%
Inadequate support from Indian government	37%
Inadequate resources or capabilities at Australian institutions	36%
Inadequate resources or capabilities at Indian institutions	30%
Lack of interest from Indian institutions	23%
Bureaucratic red-tape in Australia	23%
Differing community expectations and cultures	22%
Differing expectations of research products	19%
Inadequate familiarity with languages	8%
Other	6%

Two respondents suggested that ‘dated’ ideas and understandings represented obstacles to international collaborations:

Rather dated ideas about what Indian/South Asian Studies are, to begin with. They are largely equated with business, finance, commerce, trade and public health (and Bollywood, at a pinch).

There is very little understanding of Indian work culture, values and systems in Australian institutions. Hence, pursuing research in India becomes a very demanding exercise.

Respondents overwhelmingly agreed (88 per cent)¹⁸⁶ with the statement that ‘Australian research institutions should consult more with diaspora Indian scholars if they wish to develop research collaborations with India’. Respondents listed a range of ways that Indian scholars

¹⁸⁵ 27 per cent strongly agreed; 38 per cent agreed. The summed proportion without rounding is 65.76 per cent (and reported as 66 per cent, above).

¹⁸⁶ 53 per cent strongly agreed; 35 per cent agreed (88 per cent).

based in Australia could facilitate better collaboration between scholars based in Australia and India. Many respondents recommended additional funding for international collaborations:

More funding opportunities for collaborative projects.

Provide some funding to go there and discuss collaborative areas of research.

The existing research partnership funding is limited to certain areas of research. The field needs to broaden and funding opportunities need to increase.

Several respondents listed a series of specific initiatives to progress internationally collaborative research:

Through access to resources that help bring Indian scholars to Australia and vice versa; through organising collaborative research workshops; through encouraging potential graduate students from India to undertake research in Australia.

1. Giving inputs to design and implement various higher education courses together with Indian based universities and colleges
2. Acting as supervisors of students based in India.
3. Partnership in research projects
4. Establishing bilateral discussion panels and meetings on several issues which may open new avenues and projects for collaboration.

A few respondents stressed the importance of bridging cultural and linguistic differences:

... overcome language and culture differences.

Make Australian scholars familiar with Indian environment so that research projects can be tailored accordingly.

Several respondents recommended building on the wealth of existing knowledge about India and Indian-based researchers' expertise, to progress quality collaborations:

A substantial portion of research conducted into India at Australian institutions is poorly informed about conditions and issues in India. Such research would benefit substantially from active involvement of Indian scholars.

Australian stakeholders need to have the rigour and intellectual capacity to separate the grain from the chaff: at the moment there is a wild frontier mentality of anything-goes that allows all kinds of operators to function in the underdeveloped territory of Australia India relations. Also, Australians new to the field gain an uninformed entry into the Indian research spaces: there needs to be more stringent assessment of what Australian[s] do in India and, more importantly, how. There is a long history of academic relationships, based in deep linguistic and intellectual knowledge, between India and Australia that needs to be nurtured and fostered.

Several respondents stressed the importance of ensuring that such international collaborations are mutually beneficial:

By engaging in and funding bilateral studies that will benefit both countries.

Engage in joint productive collaborations with Indian research groups that are mutually beneficial to both Indian and Australian researchers. Collaborations should only be initiated where there is a clear scope for a productive outcome for both sides (for

example, publication output). Incentive should only be provided (for example grants) to those Indian researchers who can demonstrate productive engagement and output with Indian groups.

One respondent noted the potential to attract more international students to Australia through international collaborations:

Facilitate greater institutional links thereby, attract more Indian both coursework and research students.

COLLABORATION WITH CHINESE AND INDIAN SCHOLARS BASED IN COUNTRIES OTHER THAN CHINA AND INDIA

For the vast majority of respondents, the level of collaboration between Australian-based Chinese and Indian scholars with Chinese and Indian scholars *outside* their country of origin was infrequent. Respondents reported *occasionally* (42 per cent) or *never* (33 per cent) collaborating with *Chinese scholars* in countries other than China, and *never* (50 per cent) or *occasionally* (30 per cent) collaborating with *Indian scholars* in countries other than India. However, a small proportion of between 20 – 25 per cent of respondents collaborated *often* or *intensively*.¹⁸⁷

While these interactions may well be occasional or more frequent in some instances, the vast majority of respondents reported collaborating with colleagues in countries other than India and China (81 per cent), including scholars in the United States (68 per cent), Australia (55 per cent), the United Kingdom (53 per cent) and Singapore (32 per cent). Smaller proportions collaborate with scholars from Germany (24 per cent), Japan (23 per cent), Canada (22 per cent), France (13 per cent), South Korea (9 per cent), Brazil (7 per cent), Indonesia (6 per cent), Italy (6 per cent) and Malaysia (5 per cent).

In terms of the types of international collaboration with scholars in countries other than China or India, respondents reported professional activities remarkably consistent with those established with China-based and Indian-based colleagues including researcher international mobility, joint research and joint publication. This includes attending conferences (81 per cent), co-authoring research papers (70 per cent), conducting research jointly (68 per cent), and visiting research colleagues (64 per cent) (Table 21).

¹⁸⁷ 18 per cent and 2 per cent respectively (20 per cent in total) in terms of Indian scholars; 19 per cent and 6 per cent respectively (25 per cent in total) in terms of Chinese scholars.

Table 21: Professional activities Australian-based scholars are engaged in when collaborating with colleagues in countries other than China or India (n=176)

Answers	Response (per cent)
Attend conferences	81%
Co-author research papers	70%
Conduct research jointly	68%
Visit research colleagues	64%
Facilitate overseas research colleagues' visits to Australia	44%
Facilitate collaboration between Australian researchers and researchers overseas	28%
Train overseas students in Australia	24%
Work with a university or tertiary education/research institution	23%
Facilitate Australian research colleagues' visits overseas	22%
Participate on research assessment panels of institutions	20%
Co-author or co-edit books	19%
Teach a course at an institution	10%
Engage in consultancy work	9%
Train Australian students overseas	6%
Work with a governmental organisation (non-university)	5%
Work with a non-governmental organisation (non-university)	3%
Other	2%

Respondents were invited to provide additional comments, and many took the opportunity to do so. Several respondents stated that it is critical for Australia to collaborate and strengthen linkages with Asia, in the 'Asian century':

Very critical to collaborate with Asia.

Australian governments and educational/research institutions need to be open-minded and well prepared (financially, culturally, and politically) to enter into an Asian century.

International linkages/collaborations are critical in science and providing resources to strengthen linkages is important for strengthening Australian science and technology.

Respondents asserted that international collaborations represent a strategic plank in Australia's foreign policy and investment in world peace:

Scientific collaboration with colleagues in China, India and other countries should be much more widely viewed as a tool for Australian Foreign Policy.

Investment in scientific collaboration with other countries greatly enhances our understanding and appreciation of other cultures. It is an investment in world peace.

However, funding is key to the establishment and success of these international collaborations, and many respondents called on governments to increase funding commitments:

There is a strong need to provide seed funding for new projects involving research collaborations between Australia and China as well as between Australia and India.

The key to sustainable research collaboration is joint research projects, which need to be supported by the Australian government and institutions in terms of resources.

One respondent noted the challenges in securing funding from their country of origin:

When Australian research funding is limited, we have to seek financial support from overseas. And mother country becomes the easiest one to approach because of the language and culture convenience. ... Because of my Australia-China background advantages, some people regarded me as a strong competitor, rather than a collaborator, which gave me a big uneasy feeling. I gave up one collaboration because of this reason.

A few respondents commented on the need more broadly to recognize education as a public good:

The current government ideology that university education is a private good to be purchased by those who can afford it is very damaging to Australian universities as well as the Australian society in general. Education at all levels (like health and security) should be seen as a social and public good.

Respondents stressed the importance of supporting 'productive' international collaborations that give rise to benefits for both countries:

Australian government must develop a policy that provides incentives to both Indian and Australian scholars who can collectively demonstrate research productivity (not just make claims of engagement).

Strong collaboration in education and research between Australia and India will be of great benefit to both countries.

Australia can make a very important contribution by bringing the research labs and animal facilities to the international standard.

One respondent recommended greater recognition of the role of Indian and Chinese scholars in Australia:

An acceptance that Indian and Chinese academics do good work in oz.

Another commented on the advocacy role of internationally mobile scholars:

Collaboration on advocacy, between North-South and South-South researchers.

Recognising the centrality of export education to Australia's higher education sector, respondents suggested twinning programs and delivering Australian programs overseas:

It is important for Australian universities to start thinking about Twinning Programs with Indian/Chinese institutions to cater for students who cannot afford to do their entire program of study in Australia.

There is immense opportunity for Australian Universities and Research Institutions to collaborate with Indian counterparts to teach courses and undertake research activity in India.

One respondent asserted the importance of academic freedom:

For collaborations to grow organically, the government should simply not interfere with free scientific enterprise. Unhindered, uncensored flow of intellectual ideas between minds is a key to fruitful collaborations.

One respondent noted that particular challenges for early career researchers seeking to establish international collaborations:

I would love to collaborate with colleagues outside of Australia and even, outside of WA but it is a wide world and as an early to mid-career researcher, I'm not yet in possession of the resources I need. It would be helpful to have delegations of researchers meet in Australia and overseas to brain storm, network and build relationships with. A face-to-face meeting followed with continuing relationships would be fabulous. Maybe also a network that cuts across Australian universities, that is not university-specific or owned by an particular university so all Australian researchers in the area are genuinely welcomed.

CONCLUSION

Governments have increasingly recognised that, within the global knowledge economy, diasporic scholars have the potential to make an economic and knowledge-based contribution to both their country of origin and host country simultaneously, by facilitating a greater degree of exchange and co-operation. However, the notion of diaspora is contested. The extent to which diaspora choose to contribute to their country of origin is dependent on the significance they attach to this connection. This research, and related policy responses are particularly interested in diasporic scholars who have *objective*, *subjective* and *normative* links to their country of origin. These diasporic scholars have in their cultural background some link with their country of origin; they identify subjectively with their country of origin; and they are committed to making a contribution to their country of origin. Where these three criteria are satisfied, these diasporic scholars potentially have a key role to play in fostering successful international scholarly collaborations. The policy question then is how to develop the conditions that are appropriate for ensuring an enhanced role for diaspora in research collaborations.

The flow of globally mobile scholars is both large and growing, and this comprises large numbers of individuals originally from China and India. These diasporic scholars already bolster Australia's knowledge economy in meaningful ways through their research efforts. In addition, international students from China and India contribute substantially to Australia's export education industry and represent a pipeline for research effort through "two step migration". In addition to existing research capacity and effort, there is potential for these diasporic scholars to make an even greater contribution through supportive government policy and structures, recognising the differential requirements of the two categories: Chinese and Indian *scholars* and *doctoral candidates*.

Indeed there is a great deal of interest from Chinese and Indian diasporic scholars in professional activities involving international collaboration. For both Chinese and Indian diasporic scholars, international scholarly collaborations emerge from shared interests in research. In addition to these shared interests, Australian-based Chinese and Indian diasporic scholars believe that international scholarly collaborations strengthen Australia's relationship with China and India, and contribute to more successful outcomes for their country of origin.

However, there are a series of obstacles to establishing and maintaining strong international scholarly collaborations. For Chinese diasporic scholars, this principally includes limitations concerning Australian institutional and governmental resources, capabilities and support;

whereas for Indian diasporic scholars, concerns were foremost with respect to bureaucratic red-tape in India, lack of interest in Australia, cultural differences and lack of Indian and Australian government funding. Policy responses and support structures established to facilitate enhanced international scholarly collaborations should be cognizant of these obstacles.

Australian-based Chinese and Indian diasporic scholars are engaged in a similar range of international collaborations with colleagues in China and India. Much of this collaboration involves physical mobility, attending international conferences and visiting research colleagues in China and India, along with joint research activity and publication. While international conference attendance and visits are clearly productive and robust forms of international scholarly collaboration, they are limited. As information communication technologies continue to develop, the possibilities for virtual collaborations warrant further investigation and policy support.

Finally, policy responses could leverage the distinctive advantages that Chinese and Indian diasporic scholars have in terms of linguistic capacity and cultural understanding to establish and consolidate international scholarly collaborations. Future research could usefully explore the nature of these cultural and linguistic advantages, particularly with respect to the language of collaboration, including ways in which they could be harnessed to enhance research effort and knowledge transfer.

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