

HARNESSING KNOWLEDGE EXCHANGE AMONG OVERSEAS PROFESSIONALS ¹

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ABSTRACT

Officials, economists and others in developing nations worry about the economic impact of losing their best and brightest people to opportunities presented in richer countries. However, increasingly some of the effects of diasporas appear to be positive so that the new focus is on "brain gain" rather than "brain drain." The article begins with a brief discussion of technical and professional capacity challenges in developing countries, and then reviews recent evidence on the magnitude of brain gain. Findings on knowledge exchange among skilled professionals through diaspora networks are then summarized from case study research on the Philippines and the People's Republic of China (PRC) conducted by ADB, and from selected other work on the Asian experience. Based on these findings, policy recommendations are advanced on how to facilitate and improve knowledge exchange through diasporas.

INTRODUCTION

The international development community has long recognized capacity development, broadly defined as securing a country's ability to manage its own affairs, as crucial for economic development and poverty reduction. Only when ADB's developing member countries (DMCs) build sustainable capacity in a wide range of technical and professional skill areas can they credibly rely on their own country systems to reduce their dependency on foreign aid. Despite considerable investments by DMCs and development partners² the results are less than desired for many reasons. Capacity development is a long term process, and not normally something that can show immediate results from pressure and quick fixes. Local cultural and moral value systems need to be respected. New practices often challenge mindsets and vested interests. Capacity development can only succeed if key parties have positive incentives to proceed. External inputs need to be culturally appropriate, responsive to real demand, and in consonance with national priorities. "Where national systems are not strong enough, they should be reformed and strengthened, not bypassed." Countries need to build on existing capacities and use national expertise whenever possible (Lopez and Theisohn, 2003). The emphasis of this article is on knowledge exchange rather than knowledge transfer, since the former suggests the two-way knowledge flows that is increasingly evident in terms of its importance, i.e., from host to home countries (e.g., advanced technology) and from home to host countries (e.g., advice on the reputation and trustworthiness of potential business partners).

BRAIN DRAIN OR BRAIN GAIN?

Debate on how skilled labor migration affects capacity in source countries is currently ongoing (Rosenzweig, 2005). When skilled workers migrate, the source country loses their skills and output. When migrants are disproportionately made up of skilled workers – the source country experiences a decline in average-per-worker income, even though wages for the skills of the migrant worker in the source country (or "skill price") may go up as the supply goes down. Educational investments in the source country become subsidies to the destination country. These effects constitute the much lamented "brain drain."

Yet other forces at work where skilled migration leads to "brain gain" help to build capacity in source countries. Case studies suggest that skilled migration can prompt families to invest more in education, both because of the prospect of securing an overseas job and because the skill prices are pushed up in the source country as skilled migrants leave. Source countries also benefit from the return of migrant professionals, bringing back increased skills and knowledge. Some evidence suggests that these return flows are significant, and that many of these return migrants have received further education and training (Meyer, et. al., 1997). Education and training in destination countries benefit source countries when skilled migrants return. When skilled migration estimates are adjusted for such return migrants, the net brain drain can be sharply reduced. For example, a study based on official immigration records in the USA over the period 1971-81 indicate an average 30 per cent return rate, with some countries as high as 50%. Although this study doesn't separate out skilled migrants, many of these return migrants were educated in the USA; indeed, an estimated more than 20% of high-skill immigrants in the USA obtained some schooling in the USA. To the extent that this education is subsidized with public funds, it represents a transfer to the immigrant and their source country when they return. When skilled migration estimates are adjusted for those who receive schooling in the destination country, net brain drain value is sharply reduced. Rosenzweig estimates that in the case of four out of six Caribbean countries at least 70% of migrants (using FY2003 INS data) educated in the USA returned to their countries, and in the case of two out of three African countries, 45% of such migrants returned. In all these cases, the "brain gain" was significantly more than the adjusted brain drain. The countries studied that had a net "brain drain" -- Sierra Leone and Haiti -- each suffered severe political problems, a probable contributing cause to the net loss of skilled labor (*Ibid.*).

KNOWLEDGE EXCHANGE THROUGH DIASPORAS

Since the topic of the "brain drain" was introduced to United Nations debates in the late 1960s, there have been two significant shifts in policy thinking on development and the migration of the highly skilled. Researchers and policy makers in the 1970s focused on how to discourage "brain drain" and on how to compensate countries from which the highly skilled were migrating. Bhagwati (1976), for example, proposed that the countries of origin should impose "brain drain taxes." Although attracting certain attention, these proposals proved impractical.

Based in part on empirical findings such as those cited above, the focus on permanent return emerged slightly later. A series of UN documents produced in the late 1970s identified the return of professionals to their developing home countries as an important strategy for development.³ The International Organization for Migration (IOM) launched a program to assist educated migrants to return to their home countries in Latin America in the 1970s, and initiated a similar program in Africa in the 1980s.

Since the late 1990s, a transnational mode of thinking has emerged. It recognizes that, in the current era of globalization, global links may be more important than the human capital “stock” in a particular country. A professional thus may contribute more value to the home country by residing overseas than by returning permanently. The Transfer of Knowledge through Expatriate Nationals (TOKTEN)⁴ program initiated by the United Nations Development Program (UNDP) in 1977 was one of the pioneering programs in this area. TOKTEN assists expatriates living abroad to work for short periods in their country of origin. IOM replaced its earlier program on permanent return in Africa with a new program, “Migration for Development in Africa” (MIDA, Migrations pour le Développement en Afrique, in French) in 2000. Critically, while the earlier permanent return-oriented programs saw “reintegration” of the returnees to their home countries as a key component and the re-emigration of returnees as a failure, the MIDA program emphasizes the importance of temporary, periodic returns or even “virtual” returns, e.g., via telephone, video conferencing, e-working and e-teaching.

Parallel processes have been at work in the private sector as firms boost productivity by linking up across borders to integrate production networks that supply raw materials, manufacture components, assemble finished goods, and move them through regional and global distribution chains to consumers. Skilled migrant workers and investors participating in such production networks may greatly benefit firms in their source country, even though they are resident elsewhere. Network-based knowledge exchange is also increasingly used by research and development units of multinational enterprises located in different countries, working together to combine generic with location-specific knowledge to come up with product innovations. (Westney, 2001)

The stunning growth of India’s software industry is a notable example of how such networks benefit from India’s diaspora. This industry has created 700,000⁵ software jobs in India and exported over US\$17 billion per annum worth of goods and services⁶. There are many reasons for this success including favorable telecommunications policies and a skilled, affordable workforce. Yet the role of India’s diaspora has also been critical. Nineteen of the top twenty Indian software businesses were founded by or are managed by professionals from the Indian diaspora. The industry relies for ideas, technologies, markets, and reputational advice on individuals and professional organizations from the diaspora, and diaspora-led subsidiaries in key markets such as the U.S. (ADB, 2004; Kapur and McHale, 2003)

These approaches to knowledge exchange advanced in both the public and private sectors are pragmatic adaptations to new economic and technological realities (Economist, 2006: 1-16). Although in the past few years researchers have attempted to conceptualize these practices with respect to diasporas under the rubric of “transnationalism” (see for example, Ammassari and Black, 2001; Meyer, 2001; Vertovec, 2002) and some have proposed the notions of a “scientific diaspora” (Meyer and Brown, 1999) and “brain circulation” (Saxenian, 2002), detailed analyses of

knowledge exchange through diasporas are limited (although see Nonaka and Nishiguchi, 2001).

In response to these trends, the Asian Development Bank (ADB) has commissioned studies on the increased use of associations of highly skilled expatriate nationals in knowledge exchange and capacity development, and on the policies and level of awareness among developing countries to capture the benefits of such practices. The emphasis is on knowledge exchange rather than knowledge exchange, since the former suggests the two-way knowledge flows increasingly evident: from host to home countries (e.g. advanced technology) and from home to host countries (e.g., reputational advice on potential business partners). Detailed reviews of such knowledge exchange experiences have been commissioned in the Philippines, People's Republic of China (PRC), and Afghanistan to explore innovative means of improving policies and using networks for knowledge exchange that might otherwise be carried out by non-diaspora, expatriate professionals. Such knowledge exchanges can increase the development impact of remittances, and are valuable in their own right. The ADB studies are being carried out in consultation with the respective diaspora organizations, and will be completed in 2005. Results from two of the three studies on the PRC and the Philippines are summarized in this article.

The five-step instrumental case study methodology draws on recent work from Barzelay et al (2003) and others. The first step for each case is developing narratives focusing on events and episodes, how they began, progressed, and ended. In the case of the two cases presented here, the episode covers roughly the last 20 years. The events comprising each episode relate to the process of policy making in PRC and Philippines respectively to encourage knowledge exchanges from diasporas. The research questions try to explain factors associated with the observed outcomes.

There are two types of questions that a case study can try to answer. Type A questions have a high level of generality. Examples would include: Can knowledge exchanges increase the development impact of remittances? Can knowledge exchanges (KE) facilitate foreign direct investment? Can development agencies like ADB make better use of diasporas for capacity development?

Type B questions help to structure thinking about a particular case. What is the size and characteristics of professional diaspora? What are the channels of knowledge exchange and types of knowledge exchanged? What are the key government institutions and policies, and how have then changed during the period? Is the policy emphasis on promoting investment, donations, or KE? How effective are government institutions and policies in promoting KE? What is respective role of government and non-governmental diaspora networks in promoting KE?

This article provides some answers to type B questions, and helps to frame type A questions for future research. In answering the type B questions, we first try to explain the policy and other factors associated with KE and other outcomes. The next step is to understand the causal process leading to the case outcomes, and the final step is policy recommendations.

Numbers of skilled migrants

Numerous challenges must be confronted in attempting to estimate the size of a diaspora and its various segments, and in comparing data across countries (UNECE, 2005). Both source and host countries develop their own definitions of diaspora. Some include only foreign born, while others include second and sometimes succeeding generation migrants. Host countries may exclude foreign born once they become citizens. Estimates of source and host countries are sometimes quite different, resulting in the perception that host country data is more accurate, and typically there is only limited cooperation between statistical agencies in cross-checking methodology and data. Even host country data generally cannot be broken down by skill level. Given these problems, the caveat must be advanced that estimates provided in this article are the best available at this time.

People's Republic of China

Overseas Chinese professionals (OCPs) are defined here as ethnic Chinese residing outside the PRC on a long-term basis, with tertiary degrees, and working in specialized areas, using their specialist knowledge. They may work for universities, research institutions, business, government and NGOs. Self-employed professionals including high-technology entrepreneurs, lawyers, and freelance consultants, also fall into this category.

An estimated 60% of all the Chinese who emigrated through legal means after 1978, including both skilled and unskilled, are students and their families (Gao Weinong, 2003: 390, 395). The pace of student migration has fluctuated in recent decades. Prohibited for most Chinese during the Cultural Revolution, it picked up as part of the reforms in the late 1970s. The late 1980s saw the beginning of the formation of a sizable OCP group when, with the gradual relaxation in regulation, the number of migrant students increased -- but the return rate dropped significantly. The events of 1989 in China triggered a willingness in host countries to grant permanent residency to Chinese students, providing the basis for a large OCP diaspora in, for example, the USA, Canada and Australia.

An estimated 700,000 PRC students had moved overseas for study by 2003, and about 180,000 of these returned to PRC on a long-term basis, creating a pool of OCPs of 520,000 (including students who may return later). Combining the new OCPs with first generation skilled migrants who left before 1949 (estimated to be 600,000), it is estimated that the total OCPs by the end of 2003 was 1.1 million (Xiang Biao, 2005: 16). The average age is 35, and an estimated 95% are male. An estimated 60% of OCPs reside in the USA (Zhang, 2003: 80), with Japan and Canada the next most important host countries.

According to analysis of a random sample of CVs of 103 employed OCPs, 78.2% have PhDs, 16.4% have Master's degrees and 5.5% have Bachelor's degrees (*Ibid.*: 18). Approximately 40% of employed OCPs work in the academic field, just below 50% work in private enterprises or are self-employed, and the rest work for government and NGOs. An estimated 65% work in the fields of science or engineering. In terms of

professional standing, OCPs are concentrated in the middle level, in positions such as research fellows and medium-rank managers in firms. Less than an estimated 1,000 OCPs have obtained tenured positions in universities, or have comparable achievements (including those who have obtained the position of principal investigator in research institutes, branch managers in large corporations, have made important research achievements, have published articles in influential international journals, or have been appointed to high-level positions in government and non-government organizations) (Zhao Xichao, 2003).

The Philippines

Using a definition comparable to that employed to define OCPs, there are an estimated 2.5 million overseas Philippine professionals (OPPs), or over 32% of total migrants.⁷ Unlike the case of OCPs, OPPs largely migrate for work rather than study, and are employed in managerial, professional and technical jobs prior to leaving the Philippines. OPP opportunities are vital in meeting demands for new jobs. In 2004, the Department of Labor and Employment (DOLE) announced that nearly 1.5 million Filipinos have been placed in new jobs, with over 60% of those job placements overseas (Opiniano and Castro, 2005: 47). Because the proportion of OPPs in total migrant flows is twice the proportion of workers with tertiary education in the labor force, it is reasonable to assume that the proportion of new managerial, professional or technical jobs filled overseas is more than 60%.

In comparison to OCPs, OPPs have a lower level of education, with 99% having only Bachelor's degrees. Albuero and Abella (2002) identified four types of professionals that migrate: teachers, engineers, nurses, and computer and ICT professionals. A 2002 survey indicated that 170,000 nurses were employed overseas, compared to less than 27,000 nurses working in the Philippines. An estimated three thousand Philippine doctors are working overseas as nurses. The Philippine Software Association (PSA) has complained about the loss of the country's best ICT professionals to countries including the United States and Singapore. In 1997, the U.S. National Science Foundation reported that 5.1 percent of the total Filipino population in the U.S. is computer scientists and 12.4% are engineers. Approximately 27.2 percent of the total Filipino population in Australia is professionals (Ibid.: 14).

Government efforts to facilitate knowledge exchange and return migration

The People's Republic of China

The PRC government has put in place various policies and programs to attract both the long-term and short-term return of OCPs. The initiative of encouraging temporary return and transnational connections, as opposed to permanent return, may be traced to 1985 with the introduction of post-doctoral programs suggested to Deng Xiaoping by Nobel prize winner Dr Li Zhengdao (Tsung-Dao Lee).⁷ In 1987, Zhao Ziyang, then

general secretary of Chinese Communist Party (CCP), argued that the brain drain should be regarded as a case of “storing brainpower overseas” to be used in the future (see Zweig and Chen, 1995: 17). Similarly, the State Commission for Science and Technology suggested in 1988 that OPCs should be regarded as an overseas reservoir (*Ibid.*). The phrase “temporary return” (*duanqi huiguo*) probably made its way into government policy in the 1994 document, “Provisional Methods of Sponsoring Overseas Students to Return to China to Work in Non-Education Sectors Temporarily” issued by the Ministry of Personnel (MoP, 1997).

The PRC government emphasis on temporary return and transnational networks is most clearly evidenced by the slogan, *weiguo fuwu* (serve the motherland), proposed in the late 1990s, as compared to the earlier notion of *huiguo fuwu* (return and serve the motherland), indicating that physical return is no longer regarded as a determinant. The term *weiguo fuwu* was formally articulated for the first time in the document, “Suggestions on Encouraging Overseas Students to Serve Countries by Various Means” issued by five ministries jointly on 14 May 2001 (Xiang Biao, 2005: 3). Following this, the government and other agencies have advocated what is termed a “dumb bell” model, meaning that a professional has affiliations in both PRC and overseas and moves back and forth to serve the motherland. The *weiguo fuwu* policy encourages “flexible mobility” (*rouxing liudong*): meaning that an OCP can come and go according to his/her convenience and the need of PRC-based institutes. It also encourages “only seek to utilize, not to possess” (*danqiu suoyong, buqiu suoyou*), referring to PRC employer’ strategy of benefiting from OCPs without forming formal employment relationships — that are very commonly used.

There are three main types of government initiatives for promoting knowledge exchange through diaspora networks: policies, concrete programs, and official websites. The PRC government has issued numerous policies in this field. Following an index provided by the Ministry of Education, there are 180 government policies issued during the period from 1986 to 2003, including eight general policies issued by the State Council, 90 general policies by local government, 34 regarding industrial parks exclusively for returned overseas students, 7 on education for returnees’ children, 27 on personnel policy, nationality, household registration and even marriage of returnees, and 14 on customs regulations.

MoP, MoE and MoPS are the main policy makers in this area. MoP appears to have issued the most policies, aimed mainly at liberalizing existing regulations (for example, exempting OCPs from rigid regulations on employment or residence) to create a more friendly working and living environments. By comparison, MoE policies tend to offer extra benefits. Policies of MoPS regulate exit and entry matters, and one of the most important initiatives of the Ministry concerns the “green card” that allows OCPs with foreign passports to enter China freely within a period of time. So far, this approach is confined to selected cities, and is not yet applicable nationwide. Because so many ministries have promulgated different favorable policies, MoE recently issued the “Notification on Issuing Special ID Card for High Rank Overseas Students to Grant”, that enables OCPs to enjoy all the benefits provided by various ministries, from buying cars to sending children to kindergarten (*Ibid.*: 29).

While policies from the central government are impressive, local governments, particularly at the provincial and municipality levels, are even more enthusiastic, and

their initiatives tend to be more far-reaching and detailed. For example, as early as August 1993, the Shanghai municipality government issued the, "Notification on Special Treatment on Installing Telephones, Gas and Air Conditions for Overseas Students Who Are to Work in Shanghai". Guangzhou municipal government provides RMB 100,000 (US\$12,000) as a "golden hello" (*jianmianli*) to a returnee who decides to work in Guangzhou. Even poor provinces such as Shanxi, and cities such as Xian, also provide OCPs with free offices and facilities, seed funds for research, housing, and even special personnel to assist with applying for national research funds. Leaning province, one of severely hit with worker lay-offs, had invested RMB 78.5 million for these projects by 2003 (Mu Xiaosen, 2003).

Knowledge-user institutes have also devised their own policies to lure OCPs, offering special financial packages, housing subsidies, and research facilities. One university in Beijing interviewed went so far as to almost guarantee a job, often at an undeservingly high pay and status, for the spouses of returned OCPs (although the university now may have to stop this practice because it may have exhausted its resources) (*Ibid.*: 30).

Lastly, the PRC government has resorted to its time-honoured working method of "setting up models" (*shu dianxing*) to acknowledge and publicize the achievement of returning OCPs, thus to encourage more to come back. The national government made awards totalling 939 to returned outstanding OCPs (the "models") at honoring conferences in 1991, 1997, and 2003, for their work performance in China (*Ibid.*: 30). Usually the central government asks local institutes all over China to recommend returned OCPs whom they think deserve the award, and then the central government makes the list final according to a comparison that includes consideration of the balance between different sectors (academic, commercial, and public sectors). The second and third conferences also honored a total of 47 students through "Outstanding Institute for the Work on Overseas Students" apart from OCPs individuals (MoE, 2004). Furthermore, while the first two honoring conferences (*biaozhang dahui*) were organized by the MoE and MoP, the third was organized jointly by MoE, MoP, and MoST, the Department of Organization of CCCCPC, the Department of Public Information of CCCCPC, and the Department of United Front of CCCCPC. This clearly indicates that the PRC government attaches unprecedented emphasis to these types of initiatives and even encourages competition between government agencies and knowledge-user institutes in establishing contacts with OCPs.

These policies may have more symbolic than substantive significance. Interviews and focus group discussions indicate that only a very limited number of OCPs, including those who have been considering returning, have detailed knowledge of PRC government policies. Alarming, the Shanghai Research Team on the Motivations and Rules of the Return of Overseas Talents and the Strategies to Encourage the Return (2003) indicates that many returned OCPs in Shanghai, ranging from 98.4% to 44.8% depending on the particular policy, do not know about policies promulgated by the Shanghai municipality government aimed at offering them special benefits (Xiang Biao 2005: 31). This was confirmed by Chen Xuefei et. al. (2003). A recent survey conducted by the Department for Overseas Scholars of the All-China Youth Federation and the newspaper *Youth Reference*, based on online questionnaires, suggests that 43% of returned OCPs think that beneficial policies to support OCPs in setting up enterprises are necessary. While this figure may be lower than one would expect, 40.9% of those who have never studied or worked overseas also regard the favorable treatment as

necessary. This indicates that while OCPs themselves may not be aware of existing policies, a consensus has emerged that such policies are necessary. However, implementation of policies is reportedly uneven. One returned OCPs working in pharmacology in Changchun reported that he was most impressed by the low-rank cadres for their support when he was setting up his enterprise there. And yet some of the promised support isn't delivered (Xiang Biao 2005: 31).

There are two types of programs supporting OCPs: fund-based and activity-based. While the former facilitates knowledge exchange by allocating special funds, for example by establishing foundations, the latter provides platforms for knowledge exchange through activities. These programs are enhanced by official websites targeting OCPs.

- Fund-based Programs

Fund-based programs are initiated by three types of agencies: government ministries (e.g., MoE and MoP), government or private foundations (e.g., the National Science Foundation, Lee KC Foundation, KC Wong Foundation) and knowledge-user institutes (mainly the Chinese Academy of Sciences). What follows is a review of these fund-based programs, grouping them into different types according to their goals.

The MoE Special Fund for Sponsoring Overseas Students' Short-term Visit and Work in China, also known as the Chunhui (literally meaning spring sunlight) Plan is a typical case. The fund supports short visits for the purposes of academic exchange, providing training, taking part in joint PhD programs, transferring technology to underdeveloped regions in China and participating in R&D at large and medium state-owned enterprises. Since 1996 when it started, the program has sponsored about 7,000 short-term visits by OCPs to China. Working methods have changed over the years, but basically consist of three steps: the central committee at the MoE decides annual priorities for funding; the list is sent to the education attachés in foreign missions; OCPs submit their applications to the foreign missions, which are then processed in the missions -- with the exception of group applications or requests for full sponsorship that must be approved by MoE in Beijing. Support from local government is the key to the success of the Chunhui Plan. The priorities for sponsorship are often identified according to demands of local government, and while MoE subsidizes international trips, local governments that want OCPs to visit their areas normally cover all the costs of travel and accommodation in China.

The Chunhui Plan also intends to lead short visits to larger collaborative activities between OCPs and China. The government is thus keen to support follow-up programs. For example, in July and August 1997, 25 France-based OCPs visited Gansu province, in northwest China. They were divided into four groups according to their specialization, and visited more than 70 institutes. During the visit, they signed 56 proposals for joint projects, and submitted two suggestions to the government on agriculture technology and local development. Acknowledging the significance of these intended projects, the MoE allocated RMB 2 million to support starting 52 projects, and the province of Gansu, Ministry of Agriculture and the National Natural Science

Foundation respectively allocated RMB 300,000, 600,000 and 860,000 (Xiang Biao, 2005: 32-3).

Programs such as the Special Fund for Short-term Return to Work and Teach of the National Natural Science Foundation, and the KC Wong Education Foundation Fellowship for Short-term Return managed by the Chinese Academy of Sciences (CAS) are aimed at encouraging collaborations between China-based scholars and OCPs. Starting in 1991, the KC Wong fellowship sponsors OCPs to return to China for work for at least two months. The program was expanded in 2003, increasing the number of beneficiaries from 144 man-months a year to 193, and the total fund to RMB 1.5 million (including US\$ 120,000 and RMB 540,000) (*Ibid.*: 34).

Programs to start research projects include the Fund for Returned Overseas Students on the Basis of Competition of the MoP, the Fund for Return to China to Work on Basis of Competition at the CAS, and the Starting-up Fund for Research Projects of Returned Overseas Students of the MoE. The funding is often of relatively small, and the programs support OCPs who return on both a long-term and short-term basis (*Ibid.*: 34).

Programs to set up special chairs for OCPs on a contract basis aim to recruit outstanding professionals to work in strategic areas, and they are often backed-up by substantial funding. The Distinguished Young Scholars Program set up by the National Science Foundation grants RMB 550,000–800,000 (US\$ 66,000–96,000) to scientists below 45 years of age, for four years. The One Hundred Talent Program of the Chinese Academy of Sciences offers each selected scientist RMB 2 million (US\$ 240,000) for three years. Similar to these are the National Science Fund for Post-doctoral Fellows set up by MoP, and the Outstanding Trans-Century Talents Plan established by MoE. Although these programs are open to both OCPs and those who have studied and worked in China, OCPs form a priority target group, and often more than 80% of grant recipients are either former OCPs or are still overseas at the time of receiving grants (*Ibid.*: 34-5).

In 1998, Cheung Kong Holdings and the MoE both allocated RMB 60 million as the initial fund for the program. In addition, the Lee KC Foundation donated HK\$ 10 million to set-up the Cheung Kong Scholar Achievement Award. The Cheung Kong Scholar Program sponsors OCPs to work in China in strategic research areas under two schemes: Special-term Professors, whose tenure lasts three years and can be renewed for another two years, and Chair Professors, which lasts for one year. A professor will be given RMB 100,000 as an annual stipend and some of them are honoured with the Cheung Kong Achievement Award of RMB 1 million.

The Cheung Kong Scholar Program adopts a strict selection procedure. As the first step, universities apply to the MoE to set up Cheung Kong Scholar chairs. Once it has approval from the MoE, the university advertises the chair internationally for recruitment. Applications will be processed by a committee composed of 60 Chinese Academy of Sciences fellows and Chinese Academy of Engineering fellows, and the final list needs to be approved by six pre-eminent scientists. By June 2002, nearly 400 out of the 411 Special-term Professors had previously studied or worked overseas, and 114 of them were working overseas at time of recruitment. All 33 Chair Professors were recruited from overseas (Committee for Cheung Kong Scholar Award Program 2002; for the numbers of scholars sponsored by the program). Despite the small number of grant recipients, researchers and administrative staff in universities and the Chinese

Academy of Sciences (CAS) whom we interviewed unanimously suggested that the program has attracted some top OCPs, and has therefore significantly contributed to advancing strategic research and helped the PRC scientific community to integrate worldwide.

It is estimated that MoE invests about RMB 300 to 400 million (US\$ 37 to 50 million) per year for its OCP programs. MoP has only recently engaged in this work, but has allocated nearly RMB 200 million (about US\$ 25 million) to sponsor short-term visits by OCPs in the last few years (Xiang Biao, 2005: 35). Apart from that, in 2003, MoP also granted a special allowance to 2,500 OCPs who returned to work in China (MoP, 2003).

- Activity-Based Programs

Activity-based programs aim to function as bridges or platforms for knowledge exchange. Inviting OCPs to visit China is understandably the most conventional activity of this type of program. A number of government and semi-government agencies have organized a series of OCP delegations over the last few years, but the State Council Overseas Chinese Affairs Office (OCAO) is probably the first agency to initiate this, and it has organized different types of delegations. Since the late 1990s the OCAO has organized teams of OCPs to visit China under particular themes, and the delegations are supposed to provide technical advice in the specifically identified areas (Xiang Biao, 2005: 36).

In 1999, the OCAO initiated “One Hundred PhD Holders Homeland Visit Delegations”, and subsequently turned it into an annual event. The delegations were organized according to broad themes. For example, in 1999, a delegation consisting of specialists in agriculture visited 512 institutes in eighteen provinces, gave 136 academic lectures, 115 seminars, proposed 52 suggestions, and transferred one technology. In the end, 32 OCPs were appointed as advisors to local government. In 2001, following the central government work priority of developing the western region of China, a delegation was organized to visit the west. These visits were well received by the local governments, and there are a good number of cases where visiting OCPs helped local institutes or enterprises solve technology problems; some OCPs even became shareholders in enterprises as a result (Ibid.: 37).

The second type of activity-based program facilitates information exchange between specific knowledge-user institutes in China and OCPs. For example, CAS has established “CAS Young Scholars Academic Forums,” a program that has sponsored nearly 100 conferences since 1991. The forum seeks to enhance knowledge exchange between researchers at the Academy and those outside. OCPs are a special group to be invited, and of the more 6,000 participants of these conferences thus far, more than 1,500 have been OCPs. *Science and Technology News*, the flagship newspaper of the Ministry of Science and Technology, has a special page called “Who takes the plate?” (*shui lai zhaipai*), where local institutes all over China publicize their technology problems and seek those able to solve them. The OCAO passes on the quests to OCP associations overseas through its e-newsletter, “Snapshots of Science and Technology for Overseas Chinese” (Ibid.: 37)

In 2004, the China Association for Science and Technology launched the program of Overseas Talents Serving Homeland by capitalizing on its connections with OCP associations overseas and its local branches across China. Local branches of the Association propose projects according to the local needs. On approval, the national Association seeks OCPs who can participate in the project, and the Association may also partially fund the project. To institutionalize this initiative, the Association planned to hold two meetings annually: one for more than 40 OCP association leaders (the first meeting was held in December 2003), and the other of local associations of science and technology in China. The Association also plans to establish bases (*jidi*) in selected locations for long-term and multi-faceted collaboration between OCPs and local societies in China. For example, they are setting-up a training center for skilled workers in Shenyang, and a research base on agricultural development in a semi-desert area in Xinjiang.⁸

The third type of activity-based program brings OCPs and domestic institutes together directly, typically in the large fairs. This type of program has attracted significant public attention. The Guangzhou Overseas Students Fair, started in 1998, is one of the earliest of this type. It is largely an initiative of the Guangzhou municipal government and is co-organized with MoE, MoST, MoP, and CAS. The Guangzhou government shoulders most of the costs of the meeting, while various ministries provide technical assistance. The fair takes place during the Christmas break to cater to the time schedule of OCPs working in the West. The Guangzhou fair is characterized by:

- its large scale: for example, the 2003 fair attracted 230,000 participants (including both OCPs and representatives of China-based institutes) and 1,926 projects;
- openness: anyone studied or worked overseas is in principle welcomed;
- high financial inputs: the fair used to cover the full expenditure of OCPs, though in last few years participants have to pay their international airfares (*Ibid.*: 38)

Given the scale and cost, the immediate achievement of the Guangzhou fair is not particularly impressive—the 2003 fair resulted in completion of 1,005 agreements, a relatively small number given the 230,000 participants. Still, its openness makes it a valuable vehicle for many OCPs as their first step in exploring the PRC market.

In 2001, Hubei province and the state OCAO experimented with a new type of fair, known as the Convention for Overseas Chinese Professionals' Business Development. The convention turned into an annual event afterwards, and by 2004 they had invited more than 899 professionals to Wuhan (capital city of Hubei province), and brought in approximately 257 joint-venture agreements, of which 185 have materialized. Facilitated by the Convention, more than 500 OCPs have set up more than 300 enterprises, and 150 have been appointed as technology advisors, guest professors, or overseas representatives for universities and companies (Hubei province Overseas Chinese Affairs Office and Foreign Affairs Office, 2004). Unlike the Guangzhou fair, the

Wuhan convention in principle invites only selected OCPs. The OCPs who want to participate in the Convention submit their applications, and the documents are passed on to local knowledge-user institutes. Only those OCPs that local institutes are interested in are invited.

- Even more selective is the Jilin Convention of Consultation and Cooperation between Overseas Chinese Professionals and Domestic Enterprises. The Convention is jointly organized by the state OCAO and the Jilin provincial Office for Overseas Chinese Affairs and Foreign Affairs, with the first meeting held in 2002. Partly because of budgetary constraints, the organizers have taken a “less-but-better” approach to make the Convention small but successful. They start preparation six months before the event. Requests for proposals are sent out to up to 400 OCPs, and about 50-60 successful OCPs are invited for a conference.

After the conference, the provincial OCAO works with other economic departments to help both the OCPs and local enterprises fulfill their agreements. Because of careful preparation and follow-up actions, the Jilin conventions may be the most cost-effective of this type of activity. The budgets for each meeting were RMB 300,000, 600,000, and 700,000, for the years 2002, 2003, and 2004 respectively. At the Second Convention in 2003, 59 OCPs from fourteen countries and regions met 288 enterprises on 91 projects in five sessions. In the end, 79 agreements were signed with a total investment of RMB 3,520 million, including RMB 530 million from overseas.

Box 2

The Cooperation and Exchange Convention of Overseas Chinese Enterprise in Science and Technology Innovation co-organized by the state OCAO, MoST, MoP, Ministry of Commerce, and Zhejiang province government in 2002, Hangzhou, represents yet another strategy of network building. While most of the fairs are organized primarily to serve the economic development of the host province, this conference broke down geographical boundaries and was participated in by representatives from 34 high-technology zones and more than 600 enterprises across China, alongside 100 OCPs from more than 20 countries and regions. Furthermore, apart from seeking to match OCPs and domestic enterprises, the Convention attempted to enhance a triangular capital-technology synergy between OCPs who contribute knowledge, overseas Chinese business communities that contribute capital, and domestic enterprises that contribute links to the PRC market.

- Official Websites: Filling Gaps between Suppliers and Users

The importance of the Internet for transnational network building is self-evident, and websites specifically catering to OCPs have become another important institutionalized measure for contacting OCPs. Among the 55 OCPs surveyed, 51 are using Chinese language websites to follow information in China, and for those who left China after the mid-1990s, websites became an almost unsubstitutable means). Chinese-language

websites are not only widely used, but are also commonly ranked as the most important information source compared to other means such as TV (*Ibid.*: 41).

Acknowledging this, almost all government departments performing work related to OCPs have set up specific websites, or at least have created special sections in their general portals targeting this group. Websites set up by national agencies may be divided into two types. The first covers a wide range of information, from general news to government policies to entertainment, with the most notable examples the websites of Chinese Scholars Abroad of MoE, and the China Diaspora Web⁹ hosted by the state OCAO. The second type is more focused, primarily to provide OCPs with policy-related information. The websites Liuxue.net managed by MoE, China Overseas Talents by MoP and CAS Overseas Study and Continuing Education are probably the three largest websites of this kind.¹⁰ As a reflection of the enthusiasm of the local governments, there are numerous province and municipality-based websites, such as the Nanjing International Talent Networks, and the Liaoning Overseas Chinese Scholar Innovation Engineering Network¹¹ These local websites are basically of the second type, focusing on policy changes and recruitment information.

A systematic browse, however, suggests these websites tend to be homogeneous not only in content but also in the structure, and the second type of portal is particularly so. For example, the OCP sections in both Liuxue.Net and in Chinatalents have basically three parts: policy information, a platform where job seekers (OCPs) and recruiters (knowledge-user institutes) register themselves,¹² and links to other institutes. While the MoE website understandably provides more information about MoE initiatives, and the MoP one has the most detailed MoE policy guide, no other significant difference between the two websites in terms of the type of information may be discerned. In other words, the websites have yet to establish their distinct identities, and users may not know which website they should consult when seeking particular information.

An ADB sponsored survey yielded surprising results regarding OCPs usage of these important websites. According to these data, the website of China Scholars Abroad is the most popular, but on average OCPs visit it only occasionally. Even more surprisingly, the study found that the younger the OCP, he/she is *less* likely to visit these websites, which is the exact opposite of the general pattern of website usage (*Ibid.*: 43). This means that some significant adjustments in the websites may be needed to attract young OCPs. In ADB sponsored interviews and focus group discussions participants voiced the view that there are too many, rather than too few, websites for and about OCPs, which sometimes confuses them. Therefore, better structuring of the information within a website, and a better division of labor across them seems to be necessary to better meet the needs of OCPs.

The Philippines

The Philippines, in spite of having a good reputation globally for the management of migration flows, does not have a policy to address the development potential of skilled labor migration (Opiniano, 2004). The reasons for this possibly include that the government is unable to integrate the vital role of international migration into national development policy (Macaranas, 2005b). While the Medium-Term Philippine

Development Plan (MTPDP) 2004-2010 has portions that speak to how overseas Filipinos can contribute to development (e.g., as investors), these sections do not constitute a clear policy perspective and design for the country to strategically tap skilled migration so that gains are harnessed, and costs minimized (Opiniano, 2004). Despite the lack of an overall policy, innovative knowledge exchange activities were initiated by the government during the 1980s and 1990s.

- Transfer of Knowledge through Expatriate Nationals (TOKTEN)

The Department of Foreign Affairs and the United Nations Development Program (UNDP) ran the TOKTEN program in the Philippines from 1988 to 1994. TOKTEN was the first organized system for tapping the expertise of Filipinos abroad. This program worked by matching volunteers with projects in the Philippines (see Box 3). TOKTEN funded the trips of TOKTEN consultants to the Philippines for short-term visits that lasted from three weeks to three months.

TOKTEN consultants volunteered to share their expertise with their homeland. The TOKTEN volunteer would initiate a project and propose it to the Philippine government. However, in many instances, the government agency would not be receptive to the proposal. Based on this experience, volunteers learned to offer their proposal to the private sector instead. The Department of Foreign Affairs (DFA) Secretary gave personal invitations during his trips abroad to Filipino expatriates asking them to be involved in TOKTEN. Although the program was discontinued once the Secretary left his position, TOKTEN remains active in other Asian countries as a UNDP program (Opiniano and Castro, 2005: 38).

Box 3:

Case studies of individual TOKTEN volunteers

Mr. Larry Asera - Solar Energy

Mr. Larry Asera is a third generation Filipino-American from Vallejo, California. He is a scientist, engineer, educator, and entrepreneur specializing in the research and development of energy and environmental technology projects. His specific expertise is the development of photovoltaic or solar cell technology which makes electricity directly from sunlight. He is a pioneer in the photovoltaic industry and is known internationally for state-of-the-art projects using solar modules for electric power generation. Through DFA and STAC, he was recommended to participate in the *Balik*-Scientist Program sponsored by CFO and was awarded a TOKTEN fellowship grant in 1994.

He was assigned to the Palawan Sustainable Development Council (PSDC) to conduct a study on the feasibility of using photovoltaic technology for rural electrification throughout the province of Palawan. This project was conceptualized by Mayor Edward Hagedorn of Puerto Princesa City. The Mayor wanted to use solar panels for village lighting. Mr. Asera also did a study on the feasibility of using solar energy for water pumping, street lighting systems, and remote health clinics. Since this project, Puerto Princesa has been using solar panels for solar home systems. After 10 years, Mayor Hagedorn again contacted him through his company, Asera Group, Inc., to build a solar electric power generating plant in the same city. This project was a direct result of the initial studies he did under TOKTEN/BSP. Once this is completed, the power generating plant will be the country's first facility of its kind, and may be the largest one in the world.

Dr. Samuel Bernal - Biomedical Research

Dr. Bernal is a medical doctor from Chicago who received his doctorate from the University of Chicago in biomedical sciences and conducts cancer cell research. He taught at Harvard Medical School for 10 years as an associate professor. After Macaranas invited Dr. Bernal to join the TOKTEN program, he agreed to help develop test kits for the detection of cancer cells in shrimp. This was done to help save the Philippine shrimp industry. He did the same for *tilapia*, a type of fish considered as a staple food of Filipinos. The detection kits helped in detecting sick shrimp and *tilapia* before the illness had spread to other fish. This project was not the end of Dr. Bernal's service to the country. He also arranged for the training of several Department of Health (DOH) personnel at Boston University. Afterwards, these trainees came back and transferred their knowledge to others in the Philippines.

(continued)

Box 3 (cont.):

Case studies of individual TOKTEN volunteers (continued)

Dr. Maximo Baradas - Agriculture

Dr. Maximo Baradas is an agrometeorologist with a doctorate from Cornell University. He came back to the Philippines during the Marcos administration and presented his dissertation on how to develop irrigation systems during a drought situation. The government was not only unreceptive to his proposal, but even laughed at it. He met Macaranas later on and told him of his experience during the Marcos era and the openness of Africa and Indonesia to his proposal as well as its success in those countries. Macaranas immediately offered to match him with a private agency to implement his irrigation system in the Philippines. Baradas' irrigation system was brought to Cebu, where it indeed worked.

Dr. Baradas also helped the Philippine Rice Research Institute (PRRI) on the control of evaporation in rice fields. After that, he went up to the north of the Philippines to help the Cotton Research and Development Institute on rainwater conservation in cotton farms by minimizing degrees of evaporation and making use of retained rainwater in the soil for crop transpiration.

Source: Opiniano and Castro, 2005: 39-40.

- *Balik-Scientist Program (BSP) or Return Scientist Program*

The Department of Science and Technology (DOST) created the *Balik-Scientist Program (BSP) or Return Scientist Program* in 1994 with the support of the DFA. BSP tapped Filipino expatriate experts in science and technology. A *Balik-Scientist* was contracted by the Philippine Government for a short-term (of at least one month) or a long-term (of at least two years) period.

Contracted scientists were given free round trip economy tickets. For the long term *Balik-Scientist*, his or her spouse and two direct minor dependents also were given free round trip tickets. Under the short-term program, the *Balik-Scientists* were given a daily subsistence allowance based on the rate of the UNDP. Those under the long-term program enjoyed the following benefits:

- a. duty-free importation privilege for their professional instruments;
- b. exemption from travel tax payments;
- c. reimbursement of their freight expenses for car shipment or other personal effects;
- d. housing provided by predetermined institutions; and
- e. relocation allowances.

Since 1994, the program has had 84 grantees, 56 of whom have remained in the country. The *balik*-scientists have benefited 23 academic institutions, 22 medical hospitals, 12 government agencies and 11 industrial companies. It has provided technical expertise to 27 major programs of the government including:

- f. the space program of the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) and Advanced Science and Technology Institute (ASTI);
- g. the geothermal field development program of the Philippine National Oil Company (PNOC), Laguna de Bay;
- h. the quality improvement program of the Laguna Lake Development Authority (LLDA) and UP Los Baños;
- i. the hazardous waste management program of the Department of Energy (DOE) and Department of Environmental and Natural Resources (DENR)” (*S&T Post*, 2001).

With the *Balik-Scientist* program, DOST attempted to encourage Filipino migrant-experts to share their expertise for the purpose of accelerating the industrial development of the country. It also served to strengthen the scientific and technological manpower of academe, as well as many public and private institutions, to promote information exchange and the flow of new technology into the country (CFO, 2000). However, limited resources caused discontinuance of the program.

Box 4:Case study on the work of a *Balik-Scientist*

Dr. Manuel Garcia, a food safety specialist based in Canada, noticed the declining standards of food safety in the Philippines and offered his services to the Department of Science and Technology (DOST). He is a *Balik-Scientist* awardee designated to help survey and provide assistance in ensuring improved standards on food safety.

Dr. Garcia traveled from one region to another visiting the different DOST regional laboratories and educational institutions. He also arranged to meet with different food industries to give lectures, seminars and workshops on food safety. He also was able to meet with various technical representatives and distributors of laboratory equipment and supplies to get support for future workshops and seminars. He believed that the overall response was, "...strongly positive despite the current economic restraints." Garcia noticed the, "...relative lack of knowledge among the workshop participants," that led him to conclude, "...unlike current preoccupation in advanced and some developing countries, integrated approaches to food safety in the Philippines are still in the embryonic stage."

After unsatisfactory encounters with different institutions involved with food safety, Dr. Garcia passed a list of recommendations to DOST to improve food safety standards -- requirements and entities that needed to be updated on the latest techniques in food safety in the Philippines. Dr. Garcia believed the BSP to be, "...a highly effective approach to attract qualified expatriates for the unusual opportunity to reverse the brain drain in their motherland".

Source: Ibid.: 41.

- The Science and Technology Advisory Council (STAC)

Another notable Philippine innovation is the Science and Technology Advisory Council (STAC). STAC actually began as a project of the DFA¹³ to encourage overseas Filipino scientists to form their own associations and initiate knowledge exchange activities related to science and technology. The DFA discontinued this program although some STAC chapters have remained active. The goal of the STAC groups is to assist the homeland through technology exchange.

Among the STAC chapters that remain is STAC-Japan. Its current membership includes students, professionals and other Filipino individuals staying in Japan interested in and

willing to advance science and technology and advocate it as a necessary tool for Philippine development.

STAC-Japan has been providing training programs in the areas of computer literacy and entrepreneurship. Also, it has organized meetings on specific research areas. Tapping the potential of Internet technology, STAC-Japan has been developing an on-line database project to provide information on researchers in Japan and elsewhere. STAC-Japan even formed its own grant-making foundation, the STAC-Japan Foundation, Inc. The group also gives undergraduate research grants to science majors in the homeland. STAC-Japan organizes research conferences both in Japan and in the Philippines (the latter in close cooperation with identified universities and science and technology organizations). STAC-Japan also assists fellow overseas workers in Japan (many of whom are in the entertainment industry) through computer literacy and entrepreneurship programs (www.stacj.org).

DIASPORA KNOWLEDGE EXCHANGES FROM ASSOCIATIONS AND NETWORKS

Skilled migrants from PRC, the Philippines and other countries have a number of characteristics that can push them toward collective action, including a commitment to help family and other members of the community back home, an interest in home country affairs, and empathy and cultural affinity among themselves. As low cost travel and electronic communications becomes more available, migrant communities are able to sustain strong ties to their homelands while assimilating into their host country. These transnational migrants change how they direct their interests and resources between home and host countries at different stages of life, and in response to elections, economic factors, wars, and natural disasters. Because of their exposure to new ideas, combined with their collective commitment to the homeland, they are an invaluable resource for economic and social development in both their host and home countries (Brinkerhof, 2004; Levitt, 2005; Wescott in press).

Peoples' Republic of China

OCPs maintain regular ties with China both on an individual basis and through associations. An ADB sponsored survey found that OCPs make an average of 1.3 visits a year, and two 'phone calls a week to China. Those working in commercial enterprises and government agencies tend to visit more frequently, almost twice a year on average, than those working in academic or education institutes. The survey shows that over half of OCPs have stable academic or commercial connections with China-based institutes, including 60% of males and 25% of females. The older an OCP is and the longer he/she resides overseas, the more likely he/she is to have stable connections with China. A large number of the OCPs that we surveyed are "very willing" to return to work in China: 50% for return on a long-term basis, and 55% on a short-term basis. The older an OCP is, the more enthusiastic he/she is about short-term return. By comparison, with the decrease in age, the proportion of OCPs who are willing to return on a long-term basis increases.

According to the survey, 83% of OCPs listed personal connections with former classmates and colleagues as the most important means of establishing connections with China institutes, compared to the 20% of OCPs choosing government formal programs. According to the survey of 447 returned OCPs in Shanghai, 42.2% of OCPs identified families as their main information source about the situation in China.

Interviews and focus group discussions reveal that OCP ties with the motherland are closely linked to their career trajectory, roughly divided into four stages. First, when an OCP has completed their study and moved from being a student to being a professional, he/she often develops a strong interest in contacting China. But, given their relatively limited work experience and other resources, while OCPs are active in exploring various possible means for network building, few achieve tangible collaboration relationships. This is followed by the second stage, when the OCP is preoccupied with gaining a foothold overseas, particularly by publishing as many academic papers as possible. To this end, OCPs often target research communities in the USA and Europe—collaboration with institutes in China is not particularly helpful at this career stage. Thus, this stage forms a relatively “low” period in network building. OCPs enter the third stage when they obtain secure positions such as a long-term contract with the employer. They have more autonomy in starting new research projects and choosing partners for collaboration. Connections with China-based institutes become more beneficial; for example, working with a laboratory in China can cut research costs significantly, and China makes a “natural” top choice when an OCP wants to recruit good postgraduate students. Lastly, those in the later stages of their career often have the most, and also strongest, connections with institutes in China, and they are often motivated by altruistic concerns of helping scientific development in China.

OCP transnational connections are not only associated temporally with their career development, but also with their sector of employment. Those working in the private sector (commercial enterprises) are keener to develop networks and also actually have developed more connections than those in academic institutes. This probably has something to do with the “glass ceiling” they face, a problem more obvious in industry than in academe. Dr Xiang Weizhong, a mechanical engineer working for a large UK-based household electronics company, represents a typical case of the motivation for establishing more connections with China:

On one hand we face glass ceiling. (It is) very hard to move up to the senior managerial level. But to be honest it is also too tiring for us to do that. We have to learn all the rules and it is certainly not easy to manage all the foreigners! Yet we are overqualified for technology jobs. I can get my work done by using half or sometimes one third of my work time. We have a lot of spare time and energy. Then you want to do something for yourself. When you start thinking of this, of course developing projects in China is the best the choice ... In my area, China really needs the technology that I master. I think the situation is very conducive (Xiang Biao, 2005: 28).

Overseas associations are an important part of OCP life and, more importantly, a key means for transnational network building. It is estimated that there are currently more than 10,000 overseas Chinese associations, including more than 100 organizations not confined to any particular country (Xie Chenjia, 2002). Although the exact number of OCP associations is unknown, it is clear that they have experienced a major development over the last 20 years, in both number and geographical distribution. The

Chinese Professionals Association of Canada is one of the oldest, established in 1974. By 1997 it had nearly 1,000 members, with ten branches divided by specialties. The Chinese Association for Science and Technology, USA, was set up in New York in 1992, and has now more than 1,500 members in 27 states, with more than ten regional or disciplinary branches. The Association of Chinese Scientists and Engineers in Japan (ACSEJ) has a similar structure. Set up in 1993, the association has 1,150 members and is divided into nine branches divided according to discipline.

Age and the length of residing overseas clearly affected OCP participation in associations, particularly professional bodies. For instance, all those surveyed who were born before 1959 or who left China before 1985 are core members of professional bodies. By comparison, 71.4% of those born after 1980 and nearly 40% of those who left China after 2001 have never participated in a professional body.

For many OCP associations, organizing delegations to China has become a main, or even the most important, activity. An estimated 1,000 OCP visit the OCAO each year on their own initiative. The Japan-based New Overseas Chinese Association and the ACSEJ set up the Committee of Japan-based Overseas Chinese for Supporting Reinvigorate Northeast China in early 2004, and sent a delegation to China in March 2004. The delegation consisted of scientists and professionals, and was aimed at providing advice to state-owned enterprises in the northeast.

At the same time, inviting officials from PRC embassies or even directly from PRC also has become a standard part of large meetings of OCPs. The ACSEJ, for example, invited the deputy mayor of Beijing, with responsibility for high-tech industry, to stop over in Japan to address the association on his way to the USA to open the first overseas chapter of the Zhongguancun high-tech industry park in Silicon Valley in 2002. The Chinese Materials Association UK (CMA-UK) invited more than 20 researchers from China for its 10th Annual Congress in Birmingham, UK 14–15 August 2004.

OCP associations often serve as an incubator where OCPs develop their intention for building close ties with China. Indeed, it has become a notable trend in last few years that OCPs have returned to China in groups, particularly when setting up enterprises. For those who left China after the mid-1990s, although they do not participate in associations as actively as the older migrants, communication with fellow OCPs remains an important source of information (Xiang Biao, 2005: 58). The importance of the circle of fellow OCPs, be it an association or more loosely connected, should not be underestimated. PRC government and semi-government agencies have acknowledged the importance of OCP associations and are actively exploited it in building transnational networks. The state OCAO, for example, used to rely on embassies and consulates to collect information on establishing its OCP database, and the missions recommended about 20–30 CVs a year. After 1998, OCP associations became the main information source, and they contributed about 8,000 CVs out of the database of more than 10,000 CVs. Similarly, in organizing The One Hundred PhD Holders' Homeland Visit Delegations, OCP associations also replaced foreign missions as the main information source and contact point. The associations not only master comprehensive information of OCPs, and also disseminate information effectively. Although most OCP associations are loosely organized, they have large numbers of members, and are able to transmit information swiftly through means such as electronic mailing lists. In contacting OCP communities, OCAO always sends information to association leaders

first, and through them disseminates the message to other members, even though the OCAO is able to contact the members directly. This provides the association leaders with a basis of authority, and thus encourages them stay in close contact with the government.

The China Science and Technology Association has connections with more than 40 OCP associations in seven countries, half of them in the USA. Almost all the members of these associations are new migrants who left China after the 1970s. The OCP associations are so important that when the China Association visits overseas, they normally contact those associations first, and then through them to contact embassies or consulates if needed. In order to keep in close touch with them, the Association convenes a annual meeting of OCP association leaders and has launched the newsletter “Work Information of the Program of Overseas Talents Serving Homeland (Overseas Version)” specifically targeting OCP associations (*Ibid.*: 59).

Professional associations and networks are important not only in themselves, but also because they can effectively enhance formal government sponsored programs. The evolution of MoE programs for knowledge exchange through OCP networks, as reviewed by Chen Xuefei et al (2003), suggests that in practice, formal and informal networks often overlap. Before 1992, informal networks constituted the main channel for knowledge exchange and they laid down the basis for later program development. After 1992, the emergence of OCP associations made network developing a “collective” effort (by associations as opposed to individuals) although still informal. Network building became “formalized” after 1995, when the Ministry launched various special programs. In implementing formal programs, in turn, as in the case of organizing the Jilin Convention, informal connections with OCPs serve as an important basis. Lastly, formal programs often produce informal networks, and the extent and depth of the resultant informal networks can be a criterion to assess the success of a formal program. To explore how formal programs and informal networks can facilitate each other better, what follows examines the processes of network building of the two case institutes.

Institute A is a large institute of CAS. The institute has regular contacts with over 90 OCPs, and keeps in close touch with about 20 of them. The way in which the current institute head, Dr Tan, was recruited serves as a typical example of the combination of formal and informal networks. The institute got in touch with Dr Tan through informal means. The former head, Dr Ma, visited the UK in 1992 and got to know Dr Tan, who was interested in returning to China. When CAS started developing its OCP database in 1995, Dr Ma listed Tan in the database, and in 1996 Ma recommended Tan to CAS as a candidate for the One Hundred Scholar Program; he was accepted. This consolidated the relationship, and finally led to Dr Tan’s joining the institute in 1998 as the deputy director.

Typically, institute staff has collaborative research projects with OCPs based on personal connections, but the relationship may cease with the completion of a project. To continue and deepen the connection, the institute often helps the OCPs to apply for a KC Wong Fellowship or Outstanding Scholars Fund on completion of projects, to institutionalize long-term collaboration. When institute staff was interviewed in July 2004, the first tenure of the members at the CAS International Experts for Project Evaluation, including those recommended by Institute A, came to an end. The institute was planning to set up a special institute position of Honorary Researcher or Special-

term Researcher to maintain relations with members. When OCPs visit on a formal program, the institute also makes special effort to develop informal networks to deepen connections. The head of the human resource branch of the institute, for example, recalled that the institute director once phoned her at 8 pm to ask her to accompany a visiting OCP family for dinner in Beijing, just to make the OCP's visit as pleasant as possible.

Unlike institute A, department B at Beijing University is much smaller and has limited resources. The department had 34 faculty members in June 2004, all with experience studying or working abroad, with 11 holding degrees from overseas universities. Most of the overseas-degree holders had connections with the department before they joined it, and only one was recruited through open advertisement. The director, himself US-educated, made a special effort to search for outstanding PRC PhD students overseas. He collected student email addresses to send them calls for applications for jobs, or visited them personally when he was in country. The institute often invited OCPs to give seminars and lectures during their visits to Beijing (Ibid.: 61).

Unlike institute A, department B did not have any formal program. The department applied for less than RMB 20,000 (US\$ 2,500) a year from the university for inviting scholars from overseas. This made long-term collaboration difficult. The only major channel was to carry out international collaborative research. Department staff conducted 29 such projects between 1995 and 2000, almost all of which were funded by overseas bodies, particularly from Hong Kong and the USA. None of the projects were secured through the process of open bidding; instead, all were based on pre-existing personal connections. Collaborative research certainly contributes to knowledge exchange, but is not sustainable enough. According to the department director, most departments in the social sciences and humanities face the same problems; this is far less the case for professional departments and schools, e.g., law and business.

This case study also reveals that linking informal networks and formal programs requires conducive institutional arrangements that are often not present. Institute A has three branches charged with knowledge exchange: branches of human resources, technology, and personnel. Unlike the situation at the central government level where ministries compete with each other to expand their own work scope, these branches are wary of encroaching into each others' territory and, therefore, tend to minimize their work in contacting and mobilizing OCPs. The administrative demarcation also is detrimental to the accumulation of networks. One department may not be willing to share its information on OCPs with others. Furthermore, administrative staffs charged with network building, as with most other administrative staff, often are assigned to a different position every a few years. This is at odds with the fact that network building is time-consuming and requires continuity of effort over time. While the problem of institute A stems from the demarcation between branches, department B faces almost exactly the opposite problem. The department can only develop networks sporadically because it does not have any staff responsible for this task. Thus, creating successful synergy between informal networks and formal programs (i.e., with the administrative organizations of knowledge-user institutes) is highly important. Initiative is required to sustain the dynamisms of informal networks while implementing formal programs.

The Philippines

Another ADB sponsored research project focused on Philippine technical and professional associations in the United States, Canada and Australia. The Philippine embassies and consulates in these areas keep a repository of formal and informal Filipino associations (community groups, business organizations and businesses, nonprofit organizations, media, civic organizations, etc.), although getting accurate data is difficult. For example, the United States reports it has over 3,000 groups. Some, however, say this number may be found in the state of California alone. Based on information gathered in the study, there are roughly 674 Filipino organizations in Canada and 112 in Australia. However, only a small fraction of these are professional organizations, with the rest focusing on community, sports, cultural, and other issues.

The ADB study received completed surveys from 25 professional organizations in the three host countries. For example, one professional organization, the National Council of Philippine Canadian Accountants, is 21 years old and has 3,000 members. Another group was founded six years ago and has 120 members. In terms of the number of professionals in the membership roster, one group has 376 members who are teachers; another respondent organization has 70 members.

The respondent-organizations identify the needs of their homeland mainly through linkages with Philippine-based organizations that send requests for financial assistance, professional services, and materials. Some organizations also learn about home country needs by reading studies and articles on the Internet and in the media that report crises in their country of origin. Since most of the respondents are professional organizations that hold conferences, they also are updated with the current status of their profession in the Philippines when homeland-based representatives come and join in their conferences. Some learn about the problems of their country by reading electronic newspapers¹⁴ and by watching television. Some TV stations in urban areas in the U.S. offer programs in the home language and in English (mixed) targeted at the resident Philippine audience.

Although all respondent organizations indicated they were willing to help their homeland, the profiles of the groups showed that only a fraction of these are dedicated to helping the Philippines through donations (diaspora philanthropy), consultancy, and investment. While some groups bear a name that suggests profession-related activities, they are actually groups among these professionals that organize social events. Most of the groups dedicated to helping the homeland (e.g., regional groupings, alumni associations) provide financial and material aid. Regarding the paths of their development support to the country, most are directed to the town or school where the members came from (e.g., medical missions). The rest of the groups seek to render professional services to the country as a whole. A few associations are interested in business and trade with Philippine corporations and institutions. Two groups focus their activities on helping Filipinos based abroad (Opiniano and Castro, 2005: 25).

The respondent organizations identified the needs of their homeland through linkages with Philippine-based organizations. From these, half have identified education as the greatest need of the Philippines (Opiniano and Castro, 2005: 26), including the need to update the curriculum in universities with regard to the latest principles and techniques in specific professions. After identifying the needs of the Philippines, organizations

match these with a corresponding activity they believe will meet those needs. It is also important to consider that the respondents of the survey, dominated by professional and non-government organizations, initiate projects typically involving knowledge exchange more than financial assistance.

These practices are illustrated by some representative examples of the work of diaspora associations and networks.

- University of the Philippines - Medical Alumni Society in America (UPMASA)

The University of the Philippines - Medical Alumni Society in America began as a counterpart of the University of the Philippines Medical Alumni Society based in the Philippines. UPMASA was started in 1980 by a group of medical alumni from the University of the Philippines who were living in the United States. These alumni have 12 chapters in the United States. The association claims to have 2,000 alumni as members.

UPMASA has carried out some activities that have addressed the health needs of the country, such as supporting the Philippine General Hospital (PGH). For example, PGH's Directly Observed Therapy Short Course Clinic for tuberculosis patients has been maintained by funding from UPMASA – providing medical assistance and treatment to over 200 poor Filipinos. Another evidence of UPMASA knowledge exchange activities is the organization's annual medical mission for poor patients¹⁵. UPMASA members also encourage those members who go on vacation to take advantage of the visiting professor and consultancy program of the University of the Philippines' College of Medicine. Members can take advantage of tax-deduction incentives if they follow this program to give lectures and receive a Certificate of Lectureship and Appreciation from University of the Philippines (UP). As of August 2002, some 16 members had been fellows in this visiting professor and consultancy program.

- Philippines-Canada Trade Council (PCTC)

The Philippines-Canada Trade Council was formed in 1983 as a non-profit organization to promote trade and business relations between Canada and the Philippines. The organization's general activities involve networking among people in trade and business activities between Canada and the Philippines. They extend this networking to government and other forms of associations and organizations. They also try to promote healthy and friendly relations between Canada and the Philippines through their website by posting trade-friendly news to their readers. They also serve as a referral center with regard to trade and business between the two countries.

For 11 years, PCTC has had a sizable number of member organizations and hundreds of individual members. PCTC also has forged an agreement with the Philippines Canada Business Council, based in the Philippines, that the two organizations will cooperate to promote mutually beneficial business relations between the Philippines and Canada.

A primary activity of PCTC is hosting trade missions for Filipino and Canadian businessmen and chief executive officers. The first trade mission, held in Manila in 2003, was organized as a response to the perceived need to increase Canadian involvement in bilateral trade negotiations and interest in trading with Asian countries. A PCTC position paper indicated that the Philippines is not in the top 10 countries that Canada targets for trade (Ibid.: 30). Some of the positive outcomes of this trade mission are the opening up of factories in the Philippines to visitors interested in expanding trade, and the purchase of a pharmaceutical company that was in receivership. Another trade mission has been organized for 2005 in Vancouver, Canada -- open not only to the Philippines, but to other ASEAN member countries.

- U.S. Chapter of the Philippine Institute for Certified Public Accountants (PICPA)

The U.S. Chapter of the Philippine Institute for Certified Public Accountants (PICPA) is among the chapters of the mother organization that was formed in the Philippines (e.g., the PICPA chapter in California has 175 members. PICPA chapters can also be founded in Canada, Italy, and Australia). PICPA was formed to provide continuing education seminars to members, and to conduct activities related to the growth and development of the Philippine accountancy profession. The primary knowledge exchange activity of the association is continuing accountancy education that helps the PICPA membership in the home and host countries where PICPA members reside. PICPA also organizes global conferences for its members, the first of which was held in Las Vegas, Nevada in September, 2004.

- Greater American Siquijor Association (GASA)

The Greater American Siquijor Association is among the hundreds of Filipino migrant organizations whose formation and membership is based on member geographical or ethnic origins. In this case, GASA¹⁶ serves residents of Siquijor province who migrated to the United States. This 21-year-old organization currently has 70 members, and implements projects such as the shipment of books and toiletries (e.g., tooth brushes) to needy compatriots, medical missions and shipment of medical equipment, and promotional activities on science and technology.

Notable in the case of GASA are its Youth Leadership seminars. The aim of these workshops is to move students toward become more responsible citizens and leaders through better understanding of topics such as governance, economics and the environment.

While the hometown association activities are noteworthy and contributory to the province, an officer of the association commented that one of the major factors that constrains the potential of knowledge exchange is the absence of receptiveness of local governments, and absence of recognition of who deserves credit for the activity. This is one reason why some hometown associations prefer to communicate directly with the beneficiary, or with a non-government collaborator, rather than with the government.

- Massachusetts Institute of Technology-Philippine Emerging Start-ups Open (MIT-PESO) and Global Entrepreneurs Network-Philippines (GEN-Philippines)

The Philippine Emerging Start-ups Open at the Massachusetts Institute of Technology (MIT-PESO) is a group of Filipino-American graduate students at MIT that seeks to use members' knowledge and expertise to make a positive impact on the Philippines. MIT-PESO holds a contest in the Philippines to design business plans and feasibility studies. This entrepreneurship contest is patterned after the school's own, where the top business plan receives US\$50,000.

Another group of students, the Global Entrepreneurs Network (GEN)-Philippines at Harvard University attempts to support Philippine businesses and entrepreneurial ventures. GEN-Philippines, with the support of Philippine-based partners, held its own contest of business plans for students in business courses in Manila in January, 2005. As judged by these initiatives from second and third-generation Filipino foreigners, the sense of need to give something of value back to the homeland is evident. According to Analisa Balares of GEN-Philippines, "...[our group] was created to be a vehicle for Filipinos/Filipino-Americans abroad to collaborate with those in the Philippines in working towards a driving economic development, so that someday, the Philippines can join the ranks of East Asian Tiger economies."¹⁷

- Brain Gain Network (BGN)

One case of a transnational effort to utilize knowledge exchanges to bring about investments in country is the Brain Gain Network. Although it accepts members from all fields, special emphasis is given to high technology. Filipino graduate students from Stanford University and the University of California, Berkeley in cooperation with other Filipinos in the San Francisco Bay Area initiated the formation of the Brain Gain Network (BGN) in June, 1993.

BGN is a business network of talented engineers, scientists and organizations focused on increasing the competitiveness of the Philippine economy in world markets through the application of advanced information and bio technologies. BGN, "...seeks to counter the brain drain..." by reconnecting the expatriate Filipino network to collaborators in the Philippines. This initiative attempts to bring the acquired technological expertise, market knowledge and network of business relations of the expatriate Filipinos into the economic value-added loop.

BGN's primary activity is growth of its online community whose members include world-recognized technical experts and motivated individual engineers and scientists wishing to collaborate with them. BGN has built a large human resources database and encourages venues for business networking and joint collaboration where there a critical mass of experts and potential investors or partners exists.

BGN was relatively inactive for some time but recently it was revived by Mr. Francisco Sandejas, an alumnus of the University of the Philippines and Stanford University.

Sandejas was responsible for the successful launch of the BGN website where one can register with the BGN as a member and join in online forums on high-technology issues. One of the visions of the Brain Gain Network is for the Philippines to set up its own local version of the Silicon Valley IT community (Posadas, n.d.).

- Association of Filipino Teachers (AFTA)

Another migrant organization engaged in knowledge exchange is the Association of Filipino Teachers (AFTA), based in New York. AFTA has the *Balik-Turo* (or Return to Teach) program that began in 1993. The program is aimed at training teachers in the Philippines by sending member teachers of AFTA to the Philippines to conduct training seminars and development projects. The US-based Filipino teachers share their expertise, experience and latest techniques with their Filipino-based counterparts. The first group of teachers sent in 1994 helped 1,500 teachers and other education-related professionals. Since then, more than 4,000 teachers and professionals have benefited from the program, according to the government-run Commission on Filipinos Overseas (CFO) (Opiniano and Castro, 2005: 35).

AFTA formulates the workshop modules of the seminar and submits these to CFO. The CFO then forwards the modules to different universities, colleges and schools that then choose the modules they feel their teachers need. At the time the school year ends in the US, the head of CFO informs AFTA members of the choices of schools. The AFTA volunteer pays for his or her airfare to the Philippines. CFO prepares the materials needed for the workshops, e.g., overhead projectors, writing materials, photocopying of workshop materials. Workshops are held in schools and universities open to everybody in the participating university.

The *Balik-Turo* program is labeled as transnational because its Philippine-based partner, CFO, claims it as a collaborative program with AFTA. This knowledge exchange activity is shown under the CFO's Link to Philippine Development (LinKapil, or the *Lingkod sa Kapwa Pilipino* [Service to Fellow Filipinos]) program, a philanthropy and development cooperation program that encourages overseas Filipinos to channel development support cash, in-kind, and expertise back to the country. The LinKaPil program of CFO was an attached agency of the DFA and now is under the Office of the President. It was able to raise Philippine Pesos (PhP) 1.378 billion from overseas Filipinos from 1990 to 2003 (*Ibid.*: 35).

- Central Visayan Institute Foundation

In the fifth-class municipality of Jagna in Bohol province (central Philippines) is the Central Visayan Institute Foundation (CVIF) founded by Christopher and Victoria Bernido, both physicists. Apart from pioneering a unique learning methodology to teach science and mathematics, CVIF has a Research Center for Theoretical Physics (RCTP) that has hosted international scientific conferences and workshops, e.g., advances in theoretical physics, quantum physics. These conferences have attracted some of the

world's leading scientists, including a Nobel Prize winner and editors of scientific journals.

The Research Center for Theoretical Physics provides thesis writing assistance to the University of the Philippines' National Institute of Physics, and technical support for the Mindanao State University-Iligan Institute of Technology (MSU-IIT) to develop its doctorate in Physics program. This institution, although cash-strapped (Bernido and Bernido, 2004), provides hope that science and technology may be resuscitated. In addition, if rural areas are given the chance to set up science centers, this trend could spread the production of the country's research and development specialists to these areas. This opportunity provides Filipino migrant organizations, especially those with members who are scientists, additional impetus to invest time and energy into knowledge and technology exchange activities.

CONCLUSIONS AND POLICY OBSERVATIONS

The two case studies indicate rich and rather different experiences in tapping skilled migrants and diasporas associations for knowledge exchanges.

The People's Republic of China

The PRC experience has two distinctive features. First, almost all the programs are state-led. Although the programs are aimed at benefiting the wider society, including the private sector, the state remains overwhelmingly the major investor and organizer, and the programs are implemented through the state. At the first-ever National Conference on Skilled Labor Force and Professionals held by the Central Committee of the Chinese Communist Party and the State Council in December 2003, the president, the premier, and the vice president all delivered important speeches. OCPs have become a new political constituency for whom special policies have been designated, institutes set up, resources provided, and for which government departments compete with each other for resources and demonstration of achievement.

The second feature of OCP programs is the emphasis on profitable projects as the most desirable outcome (most typically joint ventures between OCPs and domestic enterprises). Sometimes, helping to set up profitable enterprises becomes the central goal, and knowledge exchange is only supplementary. There are good reasons for the emphasis on profitable projects. First, the connections between OCPs and China in general have become increasingly business-driven. Second, from the organizers' point of view, "deliverability" is critical — the concrete results that a program can yield — are essential for the sustainability of their work. This is particularly true for the local OCAO that require a specially allocated budget from the provincial and municipal government to support their work. It would be difficult to justify constant requests for funding without the identification of specific deliverables. Lastly, demonstrable results are important for government departments, as this provides the most convincing evidence about their performance. For this reason, a government department is often

very keen to have a large number of agreements, no matter how tentative, signed on the spot at an event that they organize.

However, this project-oriented approach is at odds with the basic fact that knowledge exchange is by definition a long-term and multifaceted process. The project-oriented approach also fails to reflect the reality that enrolled students overseas continue to form the main part of the OCP, and that work with OCPs is to a great extent an investment for the future, for which there is unlikely to be immediate achievement. How to establish contacts with self-financing overseas students -- who have little connection with the government, but are set to form the majority of OCPs soon -- remains a challenge. Furthermore, paradoxically, the emphasis on profitable projects does not mean that existing OCP programs truly link themselves into the dynamism of the global economy or domestic industries.

Bearing in mind the key features of state leadership and project-orientation, the policy recommendations flowing from this study are two-pronged. On the one hand, at least some government agencies should make the OCP programs less commercially project-oriented, and instead adopt a longer-term view with less emphasis on immediate deliverables and payoff. On the other hand, the government should try to better facilitate the mobility of the highly skilled among the workforce to the global high-tech industry rather than focusing narrowly on shorter-term return, regardless of whether it is permanent or temporary. Only by moving in this direction can the OCP programs sustain themselves successfully and contribute effectively to China's development in the long term. More specifically what is needed includes the following:

- Improved cooperation between government agencies across all levels (particularly between central and local levels) and between different agencies at the sub-national level. Duplication of effort and a lack of coordination between ministries at the central level clearly is a problem. Given the unusual complexity of inter-ministry relationship, there is a need for a better division of labor that may be achieved through the inter-ministry consultation process put in place by the central government. In addition, evaluation research is needed to assist each department in identifying its comparative advantage and focus. As a first step, ministries can work together to improve the data-collecting system on OCPs. One scenario that may be pursued is where different departments focus on *policy*, *project*, and *people* respectively.
- Despite the enthusiasm for profitable projects, the actual amount and impact of the economic contribution made by OCPs through government programs remains unclear. Thus far, based upon evidence developed and analyzed in this research project, the net outcomes of the outflow of OCPs (mainly students), the return of OCPs, and developments in the high-tech industry in China are separate and distinct. In comparison, India's experience of growth and diversification in its IT industry and with the mobility and flexible use of its IT professionals suggests that mobility itself has become an integral part of the process for assisting the development of the high-tech industry. Facilitated by firms that combine technology development and labor supply, professionals migrate as part of trade in services rather than as a result of individual behavior and incentives. Mobility of this type helps small firms accumulate capital and fosters global business connections and investment. To achieve these types of outcomes, it appears that the Chinese government should link its OCP work more closely to its

overall strategy for science and technology development and international trade in services.

The Philippines

In contrast to PRC, the Philippines has no evident policy to encourage knowledge exchange from skilled migrants and diaspora associations. There are laws that provide incentives to returning overseas workers, and the same can be done to encourage migrants to repatriate their skills and technology acquired abroad. Macaranas (2005) has recommended the following possible solutions:

- (i) Taxing the brain drain (though he noted that this will be a controversial proposal);
- (ii) Renewing support for knowledge exchange activities (e.g., STAC, *Balik-Scientist* program, TOKTEN);
- (iii) Demanding compensation from departing nationals;
- (iv) Delaying skilled workers' departure through compulsory service (e.g., as in the case of nurses).

Professional associations have started their own initiatives. Last year, major groups of medical doctors and specialists (e.g., Philippine Medical Association, associations of specialist doctors) agreed to encourage their members, especially new graduates, to serve the country first for 3 years before migrating. This will enable the country's health sector to build a new roster of medical professionals (although young) to replace those migrating overseas. The medical associations are currently doing advocacy work with the Department of Health.

Some laws directed at overseas Filipinos also may have an effect on their efforts to repatriate their resources. A significant law, the Dual Nationality Act (Republic Act 9225, signed 29 August 2003), enables Filipinos coming from abroad to regain Philippine citizenship without giving up foreign citizenship they acquired. However, it was observed that because of the law's technical complexity, Philippine migrants are still unable to effectively transfer their earnings, resources and skills. For example, Filipinos who have lost their citizenship cannot legally own land or participate as equity holders in a corporation or business. Even if some were able to become equity holders through nominee relationships, this technicality might hold back a greater number of former Filipinos, as they fear the inability to enforce their rights of ownership. According to Bagasao (ADB, 2004), "However, ensuring the accomplishment of the desired positive effects of the (Dual Nationality) law requires nothing short of a serious study of the various implications of the law on property rights, tax aspects of dual nationality, investments, (and) documentation."

The Philippines should take more steps to promote knowledge exchange initiatives. These endeavors can be done not just by overseas-based migrant networks or individuals, but by groups of returned OFWs nationwide, civil society groups and academic/research institutions, the business and government sectors, and by

international organizations. These brain gain activities deserve more attention than they have received in the past — especially from multilateral organizations, donor agencies, and even from the developed host countries of skilled Filipino migrants (through avenues such as official development assistance windows). Even if the outright repatriation of financial capital is not assured from these brain gain programs, any developmental resource from overseas citizens will benefit the motherland and should be welcomed and fully harnessed.

Migration is said to be an investment that has unsure benefits and costs (Macaranas, 2005). Given today's clamor to harness the supplementary resources from international migration to benefit countries of origin, it is hoped that various initiatives result in significant socioeconomic gains for the Philippines. The commodity that should be lured back is the knowledge and skills of Filipino workers. Knowledge is a great leveler, and it cannot be stolen (Macaranas, 2005). Still, the country may lose much of the potential gain from knowledge exchange activities and integration of intellectual and professional resources possessed by skilled migrant labor if it does not strategically harness these resources so as to spread developmental benefits (Opiniano, 2004). The potential positive distributional consequences to the entire nation that would flow from well-conceived and implemented policies and programs to stimulate knowledge exchange appear to be very high and, consequently, worthy of vigorous attention and energy.

Overall, these case studies provide varied examples of the use of associations of highly skilled expatriate nationals in the exchange of knowledge and capacity development, and on the policies and level of awareness among developing countries to capture the benefits of such practices. Such knowledge exchanges can increase the development impact of remittances, and are valuable in their own right. The country experiences have demonstrated some innovative policy options, voluntary responses, legal frameworks, and policy incentives that can help to promote increased knowledge exchange that can produce gains to compensate home countries for the professional skills lost to immigration. Yet many challenges remain to be addressed by governments, diaspora groups and development agencies so that the potential gains from knowledge exchange can be more fully realized.

Areas for Future Research

Areas for further research and analysis that emerge from this review of the social and economic development related dynamics of diasporas include:

1. Improved data collection -- there is an obvious need for all nations to gather better statistics on diasporas and migration to create formal mechanisms for exchange of this information.
2. Analysis of the economic effects of diasporas – diasporas provides a major source of income to home nations of immigrants yet recognition of this fact by both host and home nations appears to be weak. Much work appears to be needed here, e.g., what are the exact incomes flows resulting from diasporas by nation and by SES and other variables?

3. Data collection and analysis of the net economic development impact of diasporas – clearly there is a need to assess the net effects of diasporas on economic development initiatives in home and host nations. However, little reliable and comparable data appear to be available to conduct such analysis.
4. Additional work could relate analysis of diasporas to theory and data on knowledge exchange, and on dissemination of innovation in general, by country and economic sector. This body of knowledge should be tapped to address in greater depth many of the issues and questions identified in this article.
5. Investigation of the ties between diasporas and security in host and home nations – while this topic is not addressed in this article, the issue is of obvious importance.
6. The role of local governments in home nations needs to be examined relative to receptiveness to diasporas related development assistance.
7. Additional work could apply network theory to analysis of the effects of diasporas. Diasporas clearly succeed in part through networking, now enabled by improvements in information technology. However, the application of what is known about networks, networking and network behavior, including incentives to participate, appears to be an area wide open to additional research.
8. Additional work could examine social and cultural variables related to successful diaspora's income flow, networking, and economic development. What are the key variables in the economy, in business and government, and in society that explain successful diasporas experience, and what are the most evident impediments to effective knowledge exchange through diasporas?
9. Research could look at diasporas and donors, including roles in recruiting expertise, disseminating information, and intermediary roles via a local communities and NGOs.
10. Finally, the cases in this article view diaspora largely from the perspective of the effects and policies of the home nation. Research is needed to explore the activities and services provided by host nations and related policy changes as they are a plausible contributing factor to increasing value extracted from the diaspora experience.

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NOTES

¹ This article expands on Wescott, in press, analyzing results from two ADB-commissioned studies, Xiang Biao, 2005, and Opiniano and Castro, 2005, along with related studies referenced in the text. The views expressed are those of the author and not necessarily those of the ADB.

² Over \$18 billion was spent on capacity development by donors in 2003, comprising 27% of official development assistance (OECD, 2004: statistical annex, Table 2).

³ These documents include: the Buenos Aires Plan of Action adopted by the United Nations Conference on Technical Co-operation among Developing Countries in 1978, documents of the second Latin American Regional Preparatory Meeting for the United Nations Conference on Science and Technology for Development, held in Montevideo in December 1978, and the Vienna Program of Action: United Nations Conference on Science and Technology for Development in 1979 (see Pires, 1992).

⁴ The TOKTEN program was first introduced in Turkey in 1977. Since 1994, the TOKTEN program has been operated by the United Nations Volunteers (UNV). The TOKTEN program is currently implemented in 25 developing countries, and has been particularly successful in Turkey, India, PRC, the Philippines, Poland and Palestine: <http://www.tokten-vn.org.vn/introduction.html>

⁵ FY2003-4. NASSCOM, 2005.

⁶ FY2004-5. This compares with \$21 billion in migrant remittances; because of the rapid relative growth of software exports, they are expected to soon surpass remittances as a source of foreign exchange earnings. *Reserve Bank of India Bulletin*, August 2005: S706.

⁷ Based on skill profile using 2000 data from National Statistics Office, Dept. of Labor and Employment, applied to official 2003 estimates of migrant population from Commission on Filipinos Overseas and other sources covering 192 countries/territories.

⁸ Interview with Dr Zhang Jiansheng, President, China Council for the Promotion of Applied

Technology (CCPAT), a subsidiary of the China Association for Science and Technology), 29 April 2004.

⁹ Chinese Scholars Abroad (<http://www.chisa.edu.cn>) and the China Diaspora Web (<http://www.hsllmw.com>).

¹⁰ Liuxue.net (<http://www.liuxue.net>), China Overseas Talents by MoP (<http://www.chinatalents.gov.cn>) and CAS Overseas Study and Continuing Education (<http://www.castalents.ac.cn>). Other examples of this type of website include the China Human Resource Network (<http://www.hr.com.cn/>), China International Employment

Net (<http://www.chinajob.cc/>), Chinese Service Center for Scholarly Exchange (<http://www.cscse.edu.cn/>).

¹¹ Nanjing International Talent Networks (<http://www.wininjob.com>), and the Liaoning Overseas Chinese Scholar Innovation Engineering Network (<http://www.ocs-ln.gov.cn>)

¹² When we visited the Chinatalents website in June 2003, 31 knowledge user institutes registered themselves with the website to seek OCPs, including 26 academic institutes, 3 commercial firms, and 2 municipality government, respectively Shanghai and Nantong city (Jiangsu province).

¹³ STAC was born when the DFA was reorganized on July 1987 by virtue of Executive Order 239. A paper from STAC-Japan wrote that STAC had chapters in: San Francisco, Vienna, Seattle, Boston, New York, Silicon Valley, Stockholm, Melbourne, Ottawa and Tokyo (STAC-Japan, 2002).

¹⁴ e.g. The Philippines Inquirer www.inq7.net

¹⁵ While some look at medical missions as a different form of repatriating migrants' resources, the medical skills that doctors are offering for free to indigents somehow makes the activity qualified as a knowledge transfer endeavor.

¹⁶ GASA is a word in the native *Visaya* dialect that means "gift".

¹⁷ Cf. www.harbus.org/news/2004/09/20/News/Entrepreneurship.Club.Goes.Global-724297.shtml

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