

CAPACITY DEVELOPMENT ACTION BRIEFS

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CASE EVIDENCE ON 'BRAIN GAIN'

A UNDP Capacity Development Resource

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The Capacity Development (CD) Action Brief series provides focused and concise synthesis of case evidence on selected Capacity Development responses of national governments and development partners. It reviews country experiences and explores common patterns and emerging trends in CD applications using case study methodology and normative frameworks. The Action Briefs are peer reviewed by CD policy advisors/specialists and key findings are shared through the Capacity Development Network (Capacity-Net) for further inputs and insights. The final product is meant to complement UNDP's CD policy statements and practice notes and intended to be additional aid for UNDP and development practitioners.

CASE EVIDENCE ON 'BRAIN GAIN'

By Capacity Development Group, UNDP

The Brief presents case evidence on 'brain gain' as Capacity Development response under Institutional Reform and Incentives¹. It focuses on the main characteristics of existing brain gain initiatives, the challenges faced, and some of the lessons learned from a select number of country practices¹. The common patterns and emerging trends in exploring the benefits of brain circulation and expatriate knowledge networks underpin the discussion. The paper concludes that political will at the highest level and investment in tertiary education that is responsive to in-country as well as global labour market demand, coupled with a conducive policy/administrative environment and an integrated incentive package are among the key factors that enable an effective brain gain initiative.

The first and basic unit of capacity is the individual, in whom skills and knowledge are vested (UNDP, 2003). Educated and capable individuals are an obvious precondition for capacity development, stressed the recent publication of DAC. While making a case for large new investments in training capacity, it states that the spread of education and build-up of professional skills and knowledge are necessary but not *sufficient* to develop capacity, given organisational and institutional constraints (DAC, 2005).

The formation of human capital is not only a means to sustainable development but it is an end by its own right. Increasing yield or return to this form of capital investment involves enhancing a person's skills and earning power (private return) and in increasing overall economic efficiency through the complementary application of different skills and improved economic decision-making both within and outside of the market economy (developmental value). Human capital flow entails an international transfer of resources in the form of human capabilities and skills (Ndulu, 2004). Added to this, such conditions as trade liberalisation, growing emphasis on the knowledge economy, development of advanced ICT services, etc. has encouraged international labour mobility (Knight, 2005). One distinctive pattern of this mobility is the migration of skilled personnel from developing- to developed countries, often termed as 'brain drain'. The main concern, from a developmental perspective, on the outward flow of skilled people from the developing world arises from the negative consequences on growth and income levels back home. In addition to the unaffordable loss of the considerable investment undertaken in generating these skills, already poor source countries lose their potentially most enterprising and ambitious young population, limiting future leadership and stifling the development of a more dynamic private sector (Ndulu, 2004).

While the negative consequence of brain drain is well documented, this paper will focus on evidence depicting the return from a human skill and knowledge perspective of the same¹. The 'brain gain' hypothesis, which represents the knowledge and skills contribution of migrants outside of their country as potential resources for the socio-economic development of their home country, is getting momentum. Drawing from the modernisation theory and dependency theory, this hypothesis predicts the long-term positive effects in the case of (a) direct return or (b) network building process of the emigrated knowledge elite (Hunger, 2002). Generally, the positive aspects could take such forms *as incentives to acquire higher education, remittances, return migration of skilled professionals, and the creation of business networks.*

¹ Although it is beyond the scope of this paper, there is a well-documented body of rich literature on the contribution of Diaspora through remittances, which in some instances serve as key engine for the developing countries' economies and in some countries it even represents more than the sum of Foreign Direct Investment (FDI) and Official Development Aid (ODA) combined.

Using migration data by educational levels computed by Carrington and Detragiache (1998), the study shows that migration prospect exerts a positive effect on human capital formation in a cross-section of 50 developing countries.

Two basic theoretical assumptions underpin the brain gain hypothesis, i.e., there is potential contribution of emigrated elites to the development process of their home country through return migration and/or transnational networks; and it is possible for policy makers to provide sufficient incentives for the elites to re-migrate. This hypothesis also presumes an additional qualitative gain acquired through the experiences gathered by living in an industrialised country (Hunger, 2002). It further argues that the financial and social capital dimensions of this process also takes place with changes in the human capital stock and flows.

For instance, the relative success of Taiwan, the Republic of Korea and Ireland in fostering return migration has been attributed to the opening of their economies and policies to foster domestic investments in innovation and Research and Development (R&D). Developing countries with some infrastructure in R&D, like India, are more likely to attract the return of migrants, as well as money and business contacts. A "scientific Diaspora" and "immigrant entrepreneur networks" can also help sending countries capture benefits and know-how from emigrants overseas². Grass roots initiatives in Southern Africa and Latin America have been developed to link researchers abroad to networks in their home countries through knowledge networks³. Indian professionals in the US have been the primary drivers of knowledge and capital flows to India. The Indian government has contributed to the emergence of these private networks through legislative and tax rules that encourage remittances and investment from Indians abroad (Cervantes and Guellec, 2002).

Ghana's effort to harness the Diaspora option coincides with key policy reforms including the provision of the 'Dual citizenship Act 2000' under which a citizen of Ghana may hold the citizenship of any other country in addition to his citizenship of Ghana. The Representation of the People Amendment Bill also grants people in Diaspora the right to vote in national elections. The legislation strives to facilitate travel to and from Ghana and also removes any hurdles to investment opportunities for those who would want to. The creation of a full fledged Ministry for Diaspora affairs demonstrates the recognition of Government to the immense contribution that Diasporas in general and non-resident Ghanaians in particular are making to the economy of Ghana (Doreen Lwanga, 2007). Similarly, nationals of Burkina Faso and Mali living abroad have the right to vote, which in turn motivated many to participate in their country's development.

South Africa has adopted a holistic and multifaceted strategy in addressing the brain gain issue. The approach adopted is composed of enabling legal frameworks; national initiatives; public sector focus which concentrates on the recruitment and retention of scarce skills in the public service to deliver public services efficiently and on an affordable basis to the people of South Africa; and public-private and donor initiatives such as the South African Network of Skills Abroad (SANSA) (Ministry of Foreign Affairs, 2007). In Malaysia, the government designed a programme to encourage its citizens with expertise residing overseas to return home and put in place incentive package that includes tax relief on personal effects and vehicles brought by returning citizens, educational incentives for their children, and citizenship/permanent residency for non-Malaysian spouses/children of a Malaysian (Ministry of Human Resources website).

² The main feature of the Diaspora option – expatriate knowledge network - is that it tries to set up connections/linkages between highly skilled expatriates and between them and the country of origin. This allows for information and knowledge exchange between expatriates and between them and the country of origin, it allows expatriates the opportunity to transfer their expertise and skills to the country of origin, without necessarily returning home permanently.

³ Forty-one expatriate knowledge networks have been identified around the world to date. These only include networks with the explicit purpose of connecting the expatriates amongst themselves and with the country of origin. These expatriate knowledge networks are tied to 30 different countries and two regions, some of which have more than one network.

<u><i>The Common Patterns in brain gain strategies</i></u>	<u><i>The Uncommon Patterns in brain gain strategies</i></u>
<ul style="list-style-type: none"> - a reasonable levels of economic and political stability preceded successful brain gain strategies; - earlier investments in quality education and its linkage with the labour market needs often the case behind the success stories on brain gain; - governments' recognition of and commitment to the role of diasporas in the national development processes; - the creation of a conducive enabling environment and designing specific policy and financial incentive packages as part of the strategies; - Expatriate Knowledge Networks share similar organisational and administrative structures – website and databases of expertise; - The knowledge networks have links with governmental structures and process. 	<ul style="list-style-type: none"> - concentration of critical mass of expatriates in a particular sector and location (Indian and Chinese communities in Silicon Valley); - strong transnational community living simultaneously in two countries (Taiwan) - promotion of university-industry collaboration in R&D (China) - Dual citizenship rights for Diaspora (Ghana) including the right to vote and the right to return and indefinite stay for Africans (including non-Ghanaians) in the Diaspora - Open membership in knowledge networks for nationals other than country of origin (South Africa and Colombia) - Building on relative advantage (software sector in India, hardware and semiconductors in China and the shift to value added software products in Taiwan)

Moreover, developing centres of excellence for scientific research and framing the conditions for innovation and 'high-tech' entrepreneurship can make a country attractive to highly skilled workers, both from within the country and from outside. Both China and India are tapping heavily into scientific and business networks of their Diasporas in the US, Europe, Australia, and Canada. Alternative opportunities in the domestic educational systems, as well as the promise of well-paid job and high socio-economic status in the countries of emerging economies are great incentives for bright young Chinese and Indian nationals to stay home. The Hsinchu Science-based Industrial Park in Taiwan successfully attracted both high-tech companies and returning migrants, which maintain ties with offices in Silicon Valley and many rotate their personnel between offices. Besides, the financial incentives made available in these parks include low interest loans, a five-year income tax break for the first nine years of operation, the right to retain earnings of up to 200 per cent of paid-in capital, accelerated depreciation of R&D equipment, and low cost land (Anna Lee Saxenian, 2005).

Although there is no comprehensive empirical evidences on return migration and benefits from 'brain gain', there are a growing number of case-studies suggesting the enormous potential that reversing the brain drain has, in contributing to the capacity development efforts of a number of developing countries. A few country experiences are presented as annex demonstrating different 'Brain Gain' strategies, incentives and lessons learned. Moreover, drawing from the country cases reviewed, the following checklist is developed a tool to guide planned interventions on 'Brain Gain'.

Checklist for Action Agenda: *Brain Gain Initiative*

[Note: This checklist is based on the literature and country experiences reviewed, not intended to be comprehensive but essential ingredient to take note as a starting point in designing CD response strategy or programme.]

Elements	UNDP's Generic CD Mainstreaming Checklist	Operational Checklist for Brain Gain Initiative
Engage Partners and Build Consensus	<ul style="list-style-type: none"> - Identify all relevant stakeholders and engage them in the capacity development process - Support local dialogue processes - Build consensus through negotiation and dialogue and on the how, the what, and the who does what 	<ul style="list-style-type: none"> - Identify existing formal or informal Diaspora networks/association (Hometown Associations, knowledge networks, etc.) - Gauge the relative concentration of specialization, interest, type of diaspora (e.g., IT specialists of Indian & Chinese origin in US) - Explore existing outreach mechanisms (e.g., the relationship between the Diaspora associations and the diplomatic mission in the host countries) - Involve academia, think tanks, other members of the knowledge industry
Assess Capacity Assets and Needs	<ul style="list-style-type: none"> - Mobilize and design the capacity assessment exercise - Conduct the capacity assessment - Summarize and interpret capacity assessment results 	<ul style="list-style-type: none"> - Understand the structure, skill compositions and linkage with home country institutions (both state & non-state) - Assess the existing/planned cooperation frameworks, incentive structures and Information sharing mechanisms
Define Capacity Development Strategies	<ul style="list-style-type: none"> - Define capacity development strategies and the required data and analysis that supports them - Define progress indicators for capacity development strategies and capacity development - Cost capacity development strategies and capacity development 	<p>Define CD responses as they relate to (illustrative list):</p> <ul style="list-style-type: none"> - Quality education and linkage with labour market - Research and Development (R&D) - Political climate and governance system (corruption) - Salary structure and incentive mechanism - Immigration & duty/tax related policies and regulations
Implement CD Strategies	<ul style="list-style-type: none"> - Set up national and local programme and advisory teams that will guide and manage application of the strategies - Facilitate the lead institutions and networks of relevant service delivery agents to perform their functions - Introduce techniques for efficient project financial management, as well as leadership and change management 	<ul style="list-style-type: none"> - ensure appropriate legal and institutional arrangements in place to facilitate 'Brain Gain' - define the composition and mandate of coordinating bodies and other implementing bodies - work programme and budget for implementation body defined and approved - support the establishment of advisory team/committee to oversee 'Brain Gain' programmes
Monitor & Evaluate CD Strategies	<ul style="list-style-type: none"> - Conduct short-term monitoring based on the agreed CD progress indicators - Ensure results feed into results based management systems 	<ul style="list-style-type: none"> - establish national monitoring mechanism to review 'Brain Gain' initiatives - conduct regular monitoring and reporting activities - ensure 'Brain Gain' initiative results fed into appropriate national bodies

Concluding Remarks

The findings of these case studies support the ex-ante and ex-post brain gain potential. Given migration is often an uncertain phenomenon, the number of potential migrants who invest in human capital are greater than the number of actual migrants and hence an ex-ante the brain gain phenomena results in an additional accumulation of human capital. This could stimulate higher demand for quality post-secondary education, which needs to be matched with competitive provision of the same. The experiences from the case studies attests that potential benefits of brain circulation and peripheral entrepreneurship are closely linked to the level of investment in higher education (typically technical education) and political and economic stability that encourages immigrants to consider returning home and investing his/her skills, time and money in the process. Hence, reforming tertiary education to be responsive to the labour market needs both in-country as well as outside should be part of the country's strategy to maximise the benefits of brain-gain. While findings underpin the value of investment in post-secondary education, the effectiveness of such investment rests heavily on its contribution to the improved quality of the education system.

Experience from successful cases like Taiwan and South Korea includes political stability, sound economic policies leading to viable private sector development, and the institution of a fair regulatory environment. Other important strategies include establishing standards of good governance including protection of property rights, and the enforcement of rule of law through a reputable and independent judiciary system. It also calls for the need to create a civil service that is competitive and merit-based and properly compensated. While considering the return option, despite the high financial cost associated with required incentive packages, it is important to take note of the risks that such also carries through secondary effects. For instance, the promotion of such policies through incentives could actually boost further emigration if a period spent abroad came to be seen as offering a path to subsequent rapid promotion at home. Consideration also needs to be given to the tensions that can be created by offering privileges to returnees that are not enjoyed by those in the same vocations back at home.

The review of experiences suggests that two emerging social trends support the assumption that other countries can benefit from brain gain, i.e., the trend towards transnationalisation due to globalisation which makes it possible to live in two countries simultaneously; and secondly the trend towards a "knowledge society", in which the importance of human beings –who carry the knowledge - in the development process is increasing. Hence, developing countries' governments need to pay enough attention to design and promote innovative policy environments that could be instrumental to benefit from the 'brain gain' potential. Such policy reforms might include, but not limited to, monetary and non-monetary incentive packages; tax and bureaucratic reforms; targeted infrastructure development; political and administrative support to the knowledge and business networks; linking education programmes with labour market needs; fostering partnership between universities and industries; etc. Specific policy interventions and incentive packages provided by India, China, Taiwan, South Africa, etc. show case their impact on 'brain gain' both to the home country as well as their contribution to the international human capital stock and knowledge flows.

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Additional Resources

Publications and Papers

1. [Institutional Reform and Change Management: Managing Change in Public Sector Organisations](#), Conference Paper, Capacity Development Strategies: Let the Evidence Speak, November 2006, Madrid, Spain
2. [Incentive Systems: Incentives, Motivation, and Development Performance](#), Conference Paper, Capacity Development Strategies: Let the Evidence Speak, November 2006, Madrid, Spain
3. The project brief of the [Brain Gain: Engaging Diaspora in Albania's Development](#)
4. The policy paper: "[From Brain Drain to Brain Gain: Mobilizing Albania's Skilled Diaspora](#)" prepared for the Government of Albania by the Centre for Social and Economic Studies, in collaboration with the Development Research Centre on Migration, Globalization and Poverty, University of Sussex, UK
5. [Engaging the Diaspora Development – the Case of Albania](#)
6. [The programme to encourage Malaysian citizens with expertise residing overseas to return to Malaysia](#)
7. [The World Is Flat: A Brief History of the Twenty-First Century, Expanded Edition](#). Thomas L. Friedman. April 2006. Official website of the book.
8. [Press Revue de presse-Ambassade de France au Cap-Vert](#). November 2005.
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15. [Consolidated Response from South Africa on the Case Evidence on Brain Gain](#). Ms. Geraldine J. Fraser-Moleketi, Minister for Public Service and Administration, South Africa. 04 May 2007

Useful Websites

16. Website to the '[Brain Drain: Engaging Diaspora in Albania's development](#)' project, March 2006 – March 2007
17. Association for Higher Education and Development: <http://www.aheadonline.org/index.html>
18. Programme to Encourage Malaysian Citizens With Expertise Residing Overseas to Return to Malaysia: <http://www.mohr.gov.my/gpintro.php>
19. Singapore ASEAN Scholarships: <http://www.moe.gov.sg/aseanscholarships/>
20. [TOKTEN-MALI: Transfer of Knowledge Through Expatriate Nationals, Mali](#)

Annex I – Case evidence from sample countries*Information Technology Development
Case evidence from India*

India, once considered the hardest-hit from 'brain-drain' following its intense investment in quality education in post-independence period, is now labeled as one of the success stories for its achievement in reversing brain drain to its advantage of economic development, particularly in the IT field. The beginning of 1990s has seen a new development in this field, which gives India new hope in its fight against poverty and under development. It is worth noting the important contributions of the former brain drain emigrants of India in this process.

The main engine of the growing IT industry in India is the software sector, which generated a total revenue of \$5.7 billion in 1999/2000. It is also estimated that this figure will reach \$87 billion by the year 2008, with the creation of 2 million additional work places, representing more than 7.5% of the entire GDP. As mentioned in the Hunger study (2002), this success is basically explained by a combination of economic and political determinants. A competitive advantage of the Indian IT economy resulting from the mixture of low labour costs and a high qualification level of the employees explain the first determinant. Regarding the role of national policy and investment strategy, the nomination and political support of the IT sector as one of the five key sectors of Indian national economy since the mid-1980s; and the promotion of open market economy and the subsequent strategic support that led to liberalisation, tax and import liberation for the software economy along with extensive investment into technical/educational infrastructure demonstrates this direct link.

The same study also presents social (migration-bound) determinant showing that the key positions of the sector is filled by non-resident Indians. For example, 19 out of 20 top software companies in India were set up by and/or have non-resident Indians in their top management today. Moreover, organisations such as NASS-COM and 'The Indus Entrepreneur', which contributed to the upswing of the Indian software sector, were founded by non-resident Indians from the USA.

Some of the key lessons from this case study is that it tries to address the 'how' question of realising the 'brain gain' benefits. Accordingly the first step would be assessing the potential of the 'brain drain' population of a developing country, in terms of the extent and quality. This could be followed by an appraisal of the potential of the developing country to motivate and induce its Diaspora to return home, either in the short or longer term, and/or build up transnational networks. The study also emphasised the importance of the general political and economic structure in the given country and the potentiality of the specific lines and sectors (IT sector in the case of India) to attract the particular target group abroad. Besides, it is important to invest in the in-country education system to build up a large educated elite and put in place favorable policy environment with innovative incentive strategies, in order to reap the benefits of such a brain gain initiative underway. The challenge for India is now to diversify this strategy into other sectors of the economy, or is the model limited to the current one?

Source

Uwe Hunger (2002) *The "Brain Gain" Hypothesis: Third-World Elites in Industrialized Countries and Socioeconomic Development in their Home Country*. The Center for Comparative Immigration Studies, University of California, San Diego. Working Paper 47. Available online: <http://www.ccis-ucsd.org/PUBLICATIONS/wrkg47.PDF>.

The Government's Role: A Multi-tiered Phenomenon

Case evidence from China

Despite its relatively strict control over immigration policy, China has been no less vulnerable to the outflow of human talent than many developing states. Between 1978 and 2002, approximately 580,000 students and scholars have gone overseas and only 160,000 have returned. Initially, most returnees were government sponsored visiting scholars, who had little opportunity to find permanent employment abroad. Recently, and quite fortunately for China, a significant 'reverse brain drain' has emerged. While the average growth rate of returnees in the late 1990s was 13 percent, between 2001 and 2002, the number of returnees rose by 45 percent (Zweig et-al, 2006).

Although there might be number of factor to be cited, this note focuses on the role of government in this process. First, the Chinese government at all levels—national, provincial, and municipal—actively encourages overseas scholars to return to China. The central government is trying to create a favourable political climate that is more open and responsive than the past which makes overseas scholars comfortable with returning; and, it supplies funds to universities and the government-sponsored Chinese Academy of Sciences (CAS) to target returnees. Outside of Europe, China has been among the first to try to lure back leading scientists it "lost" to the US. The "National 863 Programme", the "National Climbing Projects" or the "Spring Light Programme" offer considerable amounts of money for returning scientists themselves, and for research funding and infrastructure. Part of the target group is Chinese graduates from US universities. Since 1996, 10 new programs encourage people to return, including the "Seed Fund for Returned Overseas Scholars" (1990), "Cross Century Outstanding Personnel Training Program" (1991), the "National Science Fund for Distinguished Young Scholars" (1994), and "The One Hundred, One Thousand, and Ten Thousands Program" (1995) (Ibid).

For several years, the Ministry of Finance has given CAS funds for its "100 Talent's Program" (*Bairen Jihua*). Winners of this fellowship, who are selected after presentations of current and future research to CAS Research Committees, allots 2 million RMB to the awardees; 20% can go for extra salary. Most awardees get new housing, a new laboratory, imported equipment, and a research team composed of graduate students and talented research staff, who may have a homegrown Ph.D. These returnees immediately become Full Professors, regardless of their status overseas. The focus of these programs is cutting edge, scientific sectors, such as bio-technology, nano-technology, energy efficiency, environmental protection, and material sciences (Ibid). Local governments, too, compete among themselves for overseas talent. Cities offer various incentives to make themselves the preferred destination of returning businessmen. The preferences they grant include: housing discounts, imported cars, computers, free office or factory floor space, jobs for wives and special schools for their children, and residence permits for foreign passport holders, which allows them to come and go freely, without having to relinquish their foreign citizenship.

Apart from the direct incentives, the Chinese have succeeded in creating a dynamic macro-economic environment to attract tertiary students back. According to the 'China Daily' newspaper (2007), overseas-educated researchers are playing a predominant role in China's prestigious scientific projects, such as the space programme and human genome mapping. Returnees have founded nearly all the country's high-tech companies listed on NASDAQ. Currently, over 110 different kinds of special zones and industrial parks for such "returnees" have been established, according to the Chinese MOE website. Over 6,000 enterprises are located in these parks, employing more than 15,000 returnees.

However, the significant 'reverse brain drain' that is currently underway, many of the mainland's top researchers and entrepreneurs currently living in the Diaspora are not prepared to return home. Family obligations and professional affiliations are not easily set aside. The "Diaspora option," of building a transnational scientific community therefore becomes one more way in which much Western technology can flow into China and help build a strong china through science and education (Zweig et-al, 2006).

Source

David Zweig, Chung Siu Fung and Wilfried Vanhonacker (2006) Rewards of Technology: Explaining China's Reverse Migration. Revised Paper submitted to JIMI, September 2006, Center on China's Transnational Relation. Working Paper No. 11

Engagement in Knowledge Networks
Case evidence from Romania

Following the collapse of communism in Eastern Europe, many countries experienced migration of varied nature and magnitude. In the case of Romania, with slow domestic economic growth and opening of markets, emigration has become a serious problem. Studies show that it is rather the skilled and young who are the most likely to move abroad and they usually choose permanent emigration (Pănescu, 2002)

In an attempt to assess the brain drain in CEECs, Straabhaar and Wolburg (1999) have demonstrated the picture of skilled immigration into Germany between 1992 and 94, using labour force survey data. While the finding of this study reveals higher skill flow from Bulgaria and Hungary, the stock of Romanian nationals is much higher than the flow of immigrants – 21% against 10%. Hence the evidence from this finding provides support that the skill selection continues ex-post as only the most skilled remain on the long run. Panescu claims that in conditions of uncertainty related to migration, this is ex-ante effect consisting of a stimulus on human capital formation which might offset the brain drain effect (ibid).

According to Nedelcu, networking is part of the migration strategy, linking migrants with other migrants, potential migrants and non-migrants. This study provides empirical support for this idea through a study of Romanian IT migration to Canada. Once the early group of IT migrants become professionally mobile upwardly, they facilitated the emigration of others. Nedelcu as cited in Pănescu (2002) explained that these expatriates have also involved themselves in business projects with companies at home, thus contributing to the development of the local IT industry.

Knowledge/scientific Diaspora networks have been identified by Meyer and Brown (1999), including the FORS Foundation. For instance, this foundation is a non governmental initiative that seeks to involve Romanian scientists both in Romania and abroad in contributing to the process of economic reform and socio-economic development in Romania. However determining the success of these networks in terms of input or impact on the development of the home country is difficult to determine due to data limitations. Nevertheless, this does not mean that these exchanges are not significant (Ibid), and a direct survey among its participants could be facilitated for such feedback.

One measure of the popularity of such Diaspora networks is the fact that so many countries have developed and use them (Meyer and Brown identify 41) and many are functioning for over a decade and none has dissolved (Meyer and Brown, 1999) suggesting that they constitute a significant strategy. Therefore, although this is a new strategy and still developing, the international Diaspora has an impressive potential of information, skills flows, constituting a prospective *ex-post* channel of brain gain.

Source

Cătălina Andreea Pănescu (2002) Brain Drain and Brain Gain: A New Perspective on Highly Skilled Migration. Diplomatic Academy, Ministry of Foreign Affairs, Bucharest

Jean-Baptiste Meyer and Mercy Brown (1999) Scientific Diasporas: A New Approach to the Brain Drain. Prepared for the World Conference on Science, UNESCO – ICSU, Budapest, Hungary, 26 June-1 July 1999

Annex II – Case Evidence Profile Summary on Brain Gain Initiatives from Selected Countries

Strategy/Programme	Main Characteristics	Incentives Packages	Challenges Faced	Lessons/Remarks
<p>China's integrated package of policies to attract skilled Chinese, backed with support from central and local governments, and administrative and academic institutions.</p>	<p>Bold policy measures including:</p> <ul style="list-style-type: none"> - mobilisation of the administrative machinery overseas for recruiting scholars and establishing scholar networks; - easing the process of return through job search facilities, housing discounts, and schooling arrangements; - funding for short-term visits and scholarly exchange by overseas Chinese; and - increased investment in higher education and is encouraging universities to use these funds to attract overseas talent. <p>Local governments also embarked on:</p> <ul style="list-style-type: none"> - aggressive recruitment of overseas talent by local governments; - establishment of "parks for overseas scholars to establish business and Returning Students Venture Parks" within the Development Zones of High & New Technology Enterprise; - addressing special needs of returnees, from accelerating bureaucratic processes involved with establishing residency to insuring access to prestigious primary and secondary schools for their children. 	<ul style="list-style-type: none"> - Commitment of US \$25 million over a 15-year period to set up a website and centre to assist returnee Chinese scholars; - Support to R&D, including those focusing on the development and expansion of research centres and 'science parks'; - Increase of state funding for higher education from \$4 billion to >\$10 billion in 2003; - China's 100 Scholar Plan, which aimed to attract 100 foreign educated returnees to work at the Chinese Academy of Science; - 'Western style' salaries to attract hundreds of overseas Chinese scientists; - Increased accessibility to superior housing and education for their family; - Strengthen connection with its Diaspora by hailing them as 'patriotic' in recognition to their role in raising China's profile on the global stage; and - tax incentives, preferential business loans, free office space, better housing and faster promotions by City and local governments are offering to attract foreign educated returnees. 	<ul style="list-style-type: none"> - Political control, ongoing corruption, and weaknesses in financial markets - Venture investment in China is still in its early stages: there has not yet been a complete cycle of investments and reinvestments in a second generation of entrepreneurs. – Cross-regional firms face significant difficulties coordinating distant activities, particularly in developing organisational synergy and persistent, consistent communication; - Controlling and protecting their intellectual property 	<ul style="list-style-type: none"> - Investment in higher education, typically technical education, and political and economic stability remain key to attract overseas talent back home; - The importance of coordination across different levels of governments and institutions and for going beyond grand statements and events to implementing concrete programmes; - The recognition of the importance of higher education and research institutions, including improvements in educational infrastructure, increased research funding, and industry-academic collaboration in R&D and adoption of new technologies, in Diaspora/return migration policies.

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<p>Technology Development in India</p>	<p>The return of Non-Resident Indians (NRI) to build up the software sector in the country was encouraged by the government's economic reforms which led to considerable tax and import liberalisation for the software economy coupled with extensive investment into infrastructure. The NRIs have established most of the successful software enterprises in India while a substantial number of them are in the management of many such enterprises. In addition organisations such as NASS-COM and The Indus Enterprise (TIE) were set up by NRIs. They also greatly contributed the growth of the sector through facilitating export in to the USA and other developed countries.</p>	<ul style="list-style-type: none"> - The establishment of the Software Technology Parks (STPs) scheme along with tax exemptions for five years and guaranteed access to high-speed satellite links and reliable electricity; - The economic liberalisation that began in 1991, particularly the removal of duties and licenses on imports of software and industrial equipment; - Specific government polices that have aided in knowledge transfer include: a Ministry of Overseas Indians 2005/2006 increasing their budget by 500%, the provision of dual citizenship, recognition of Persons of Indian Origin (PIO) through the creation of a special ministry, Pravasi Bharatiya Divas, an annual celebration/conference for PIO, and a Research Scientists Scheme which aims to bring back Indian nationals working overseas to teach in Indian universities. 	<ul style="list-style-type: none"> - India still lacks a critical mass of returnees or transnational entrepreneurs, and there are few Taiwan-style "astronauts" or U.S.-educated Indian engineers who have their feet sufficiently in both worlds to transfer up-to-date information and know-how about markets and technologies. - Expatriates also complain about bureaucratic restrictions, corrupt and unresponsive officials, and limited efforts to improve the domestic infrastructure—from roads and airports to energy supply and telecommunications. - The risk of enclave- like development is quite real in India, where thriving technology districts like Bangalore appear better connected to Silicon Valley than to their impoverished domestic hinterlands. Unlike in China, where the government has used its resources actively to insure that investment and growth continue in the west as well as the wealthy eastern regions, the distrust of the public sector in India constrains the educational and infrastructural investments needed to spread the benefits of growth. 	<p>Assessing the potential of the 'brain drain' population outside country X, in terms of the extent and quality, is the first step in the effort to benefit from brain gain. This could be followed by an appraisal of the potential of country X to motivate and induce its Diaspora to return home and/or build up transnational networks. The Indian experience further emphasised the importance of the general political and economic structure in the given country and the potentiality of the specific lines and sectors (IT sector in the current case) to attract the particular target group abroad. This could include economic/political stability and safety of investment.</p>
	<p>The growing attention in India paid to these successful NRI entrepreneurs combined with the market successes of Indian firms like Infosys, Wipro, and Satyam created role models for young Indian engineers. The NRIs in turn invested in promising start-ups and venture funds and begun to serve as role models and advisors for local IT entrepreneurs.</p>			
	<p>In the effort to create a more attractive context for returning entrepreneurship, the NRIs have played greater role in influencing government policy on venture capital and proposed a series of regulatory and institutional reforms.</p>			

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<p>The Government as Catalyst, the Case of Taiwan</p>	<ul style="list-style-type: none"> - The Hsinchu Science-based Industrial Park successfully attracted both high-tech companies and returning migrants, which maintain ties with offices in Silicon Valley and many rotate their personnel between offices. - The government sponsored international conferences on science and technology to give workers in the park more access to the international scientific community. - Since early 1990s Hsinchu Science Park had become a destination for hundreds of returnees each year. These returnees in turn actively recruited former colleagues and friends from Silicon Valley to return to Taiwan. - The Park was attractive to engineers from the US in part because of its location, which was close to the headquarters of Taiwan's leading public research institute, Industrial Technology and Research Institute (ITRI) and its subsidiary, the Electronics Research and Service Organization (ERSO) which in the 1980s spearheaded a technological leapfrogging through the government-led acquisition of semiconductor manufacturing technology from the U.S. 	<ul style="list-style-type: none"> - Active government recruitment and the opportunities created by rapid economic development attracted US-educated engineers to return home. - The spread of venture capital financing in the early 1980s encouraged the returning immigrants to transfer the Silicon valley models of early-stage high risk investing to Taiwan. - The government provided substantial matching funds. Once the early investments began to pay off, domestic IT firms created their own venture capital funds. - Hsinchu Science Park also offered a range of financial incentives for qualified technology investments and provided returnees with preferential access to scarce, high quality housing and to the only Chinese-American school in Taiwan—both of which are located on the park grounds. The incentives also include low interest loans, a five-year income tax break for the first nine years of operation, the right to retain earnings of up to 200 per cent of paid-in capital, accelerated depreciation of R&D equipment, and low cost land. 	<ul style="list-style-type: none"> - Adaptive capacities of Taiwan's industrial systems - in the face of China's advance in technological parity in manufacturing, Taiwanese industry needs to establish new specialisations, either as producers of high-value-added software, content, and services or as manufacturers of distinctive systems and equipment that build on their existing strengths in designing, manufacturing, and recombining intermediate parts and components. 	<ul style="list-style-type: none"> - Subsidise education only up to the level actually demanded by the national economy. It focused on providing strong universal basic education and vocational programs as demanded by the domestic labor market; - Migration can provide a "brain reserve", i.e., due to the late development of Taiwanese universities, Taiwanese industry received critical expertise, at the moment it was most needed, from people whose advanced education had not been subsidised by Taiwanese taxpayers. - Effective use of Diaspora networks for knowledge exchange, business connections, and expertise to both the government and private sector and the same networks later facilitated the return of migrants. - Build a critical mass of returnees – Taiwanese subsidise the formation of a community of well-educated people at the Hsinchu Science-based Industrial Park in order to attract creative, Western-educated people that in turn attracted more returnees.

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<p>The South African Network of Skills Abroad (SANSa)</p>	<p>This Diaspora network, which is supported by the South African government, has a website that facilitates links and exchanges both between SANSa members, and between them and their counterparts in South Africa. It links skilled people living abroad, in various domains including academic, cultural and commercial, who wish to make a contribution to South Africa's economic and social development and connects them with local experts and projects. Members of the network can contribute by receiving South African graduate students in laboratories, or training programs; participating in training or research with South African counterparts; transferring technology to South African institutions; transmitting information and results of research which are not locally available; disseminating cultural and artistic creation; facilitating business contacts; facilitating discussion forum(s); and initiating research and commercial projects.</p> <p>Organisations like The Homecoming Revolution, The International Marketing Council of South Africa and South Africa the Good News are playing an important role in driving the brain gain through targeting potential returnees and furnish them with upbeat information about the country and its prospects.</p>	<p>- There are some programmes aimed at drawing top researchers to the country, such as the University of Witwatersrand's Friedland Fellowship, an attempt to reverse the brain drain by offering globally competitive, post-doctoral research opportunities to foreign students and researchers.</p>	<p>- A strong rand, increased property prices, and negative perceptions about the country's future in relation to crime and safety are among the challenges perceived by potential returnee South Africans.</p>	<p>-The government's deliberate effort to benefit from brain gain drawing from concrete experiences of Asian and Latin American countries is commendable.</p>

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<p>The Diaspora Option in Ghana: the case of Ghana Cyber Group (GCG)</p>	<p>GCG was founded in 1999 to leverage advances in information technology to strengthen Ghana's economy. In 2003, GCG launched the Ghana Technology park proposal, which is envisaged to be a medium term corporate entity that will make available infrastructure facilities to growing technology firms, both domestic and foreign, to provide business process outsourcing, call centers and other products for IT markets in United States, Africa and other emerging economies.</p>	<p>- The Ghana Technology Park will be established at the Accra-Tema Export Processing Zone, a special free zone area designated by the Ghanaian government for technology and industrial development with generous tax and other commercial incentives. The free zone is equipped with reliable utilities, including an on-site power sub-station to ensure uninterrupted energy supply, a large water reservoir and reliable but affordable telecommunication services.</p> <p>- Ghana's effort to harness the Diaspora option coincide with key policy reforms including the provision of the 'Dual citizenship Act 2000' under which a citizen of Ghana may hold the citizenship of any other country in addition to his citizenship of Ghana; the right to return and indefinite stay of Africans in the Diaspora, and the Representation of the People Amendment Bill, granting people in Diaspora the right to vote in national elections. The legislation will facilitate travel to and from Ghana and also remove any hurdles to investment opportunities for those who would want to. The creation of a full fledged Ministry for Diaspora affairs demonstrates the recognition of Government to the immense contribution that Diasporas in general and non-resident Ghanaians in particular are making to the economy of Ghana.</p>	<p>- The government of Ghana still lacks a conceptual and legal framework in which to integrate the energies of its Diaspora into a program of renewal</p>	<p>- There are possibilities for joint economic initiatives, such as those being undertaken by the Ghana Cyber Group. These could involve bringing together credible individuals who use the internet to establish networks of mutual trust on the basis of which to launch economic ventures and other undertakings whose ultimate mission is tailored towards the development of their countries.</p>

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<p>Colombian Network of Scientists and Engineers Abroad.</p>	<p>It is one of the first networks to have emerged as an autonomously organised group of expatriate scientists with a mandate to build the Colombian Science and Technology communities and link them to international Science and Technology communities through professional contacts, conferences, seminars and other knowledge-sharing strategies</p>	<p>- Network member engaged in collaborative research projects including such projects as the Bio 2000 project and a project for the transfer of technology in the area of robotics.</p>	<p>- Ensuring the long-term survival of a Diaspora network is a serious challenge since its population is very mobile, and may not always focus on national science and technology interests. - The relative size of The home-based scientific community and Combined with The diversity of their fields of expertise makes potential scientific exchange and collaborative work (even virtual) with the Diaspora difficult.</p>	<p>The red-Caldas experience reiterate the necessary steps to be taken when trying to effectively engage the Diaspora, i.e., - i) create a database of highly qualified nationals abroad and keep it up-to-date; ii) mobilise and organise these individuals; iii) reconnect them with the scientific, economic and industrial community at home; iv) capitalise on their work and own professional networks; and v) encourage interactions between them and the home scientific community, in the form of exchanges and common research projects.</p>
<p>Diaspora Contribution to Local Development in the case of Mexico</p>	<p>- It is government led intervention - the 'Paisano Program' that encourage return migration through improving border and custom services and the 'Program for Mexican Communities Living Abroad' (PCMLA), which also helps channel remittances to local development projects in Mexico. - The programmes supported employment-generating activities and efforts to increase living standards through construction of schools, roads, health centers, potable water facilities and others.</p>	<p>- Introduction of legislative changes to allow Mexicans living abroad to hold US dollar accounts in Mexico and to maintain dual nationality (although without voting rights); - The Diaspora is encouraged to invest in one or more of the over 1000 projects identified by the Presidential Office for Mexicans Abroad in consultation with the local communities. - Loans to Mexican students is forgiven through Mexico's loan forgiveness programme (Becas CONACYT) for those who have studied abroad and wants to return home to teach in a Mexican University</p>	<p>- Poor infrastructure (physical and financial), underdeveloped markets, corruption, and a poor investment climate confine the potential of remittance-focused strategies to the immediate receivers.</p>	<p>- The bottom-up Diaspora relations which built on individual/family remittances; - turning collective remittance into models of grass-roots development; - active engagement of Mexican states in outreach to emigrant communities; and - the local focus of many of the programs gives them a direct connection to the poor.</p>

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<p>Palestinian Scientists and Technologists Abroad (PALESTA)</p>	<ul style="list-style-type: none"> - It is an internet-based network that harnesses the scientific and technological knowledge of Palestinian expatriate professionals for the benefit of development efforts in Palestine. - This government initiated network contains a database of expatriate Palestinian scientists and engineers and also includes facilities for secure discussion among participants as they contribute their technical knowledge and experience toward addressing problems important to the development of the Palestinian economy. - The database currently contains information on 955 expatriate Palestinian professionals. 	<ul style="list-style-type: none"> - Recognising the difficulty of free movement of Palestinians from the Diaspora to the Palestinian Territories, this mailing list constitutes a very important means of opening up discussion between individuals in distant places, in a cost-effective manner. - PALESTA advertised jobs available in NGO's and public and private institutions in the Palestinian Territories. 	<ul style="list-style-type: none"> - Low participation rate – with only a third of the network members were active; - lack of interaction among network members – each message is re-sent by a moderator without an email address or the area where the writer of the message lives; - the PALESTA management was unable to mobilise local organisations to identify problems that obstruct development in the Palestinian Territories; and - insufficient co-operation between PALESTA and the local institutions and ministries that the moderators worked for. 	

Contact Information

United Nations Development Programme
Bureau for Development Policy
Capacity Development Group
304 East 45th Street, FF-6th Floor
New York, NY 10017
Tel: 212-906-3643
Fax: 212-906-5896
E-mail: bdp.cdq.hq@undp.org
Website: <http://www.capacity.undp.org>

Capacity Development Network: capacity-net@groups.undp.org