



**Human resource flows from and between developing countries:
implications for social and public policies.**

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Introduction:

Today, a small majority of the world migrant population goes to Northern OECD countries. Roughly half of the flows therefore occur between developing countries. This is confirmed by recent estimates of both the United Nations Organization and the World Bank, though data limitations may minimize migrant movements, especially South-South. When qualifications are taken into account, the flows of skilled human resources appear to be significantly higher towards rich countries than towards the others. This is the result of a traditional concentration of educational, technological and scientific capacities in the North and of an unequal worldwide distribution of labour, income and living conditions. However, there is some evidence that the pattern of flows is becoming more complex. The traditional North-South bipolarity creates a situation in which new countries from the South send and/or receive highly skilled people. Despite information limitations and the need for a historical perspective to assess specific trends, these changes tend to indicate an increasing multilateralisation of human resource flows in the global society. At the same time, the feminization of these flows – now well assessed for overall migrations- exhibits particularly strong features within the highly skilled sub-population. The rate of tertiary educated female emigrants from the South is higher than for males. And the impact on social/human development indicators is noticeable.

The mobility of health professionals and its impact on shortages of medical staff in a number of developing countries has been a major concern for the last decades. Here too, the flows between countries have mainly been from the South to the North and especially to a couple of main receivers in North America and Western Europe. However, recent trends show a diversification of destination and of providers of health personnels and some data show that South-South flows have increased. However, using OECD data and comparing the magnitude of outflows with local shortages, the findings reveal that outward mobility of medical staff is but a small part of the deficit of the countries. Nonetheless, the impact of such outflows on training, education and the sustainability and reproduction of local capacities in health should be discussed beyond quantitative evaluation only. Here too, the lack of accurate data is a problem. Relying exclusively on OECD statistics hides in fact a significant part of emigration from small Southern countries to other non-OECD countries, which may represent a very high proportion of local health workforce, when added to recorded OECD exits.

With regards to education, the debate does not revolve around losses of teaching staff but rather on the impact of migration on educational standards in origin countries. Over the last five years, a revisionist approach has argued that the prospect of emigration has increased

individual motivation to acquire human capital and has thus been a factor in promoting higher education in developing countries. However, in spite of the theoretical refinements in this approach, the evidence supporting this argument is not conclusive.

Due to significant changes in mobility and communication patterns – world commuting, short term migrations, increasing return, transmigration, connection through NTICs, permanent information through media satellite, contribution to home country initiatives – the conventional vision of brain drain as a definite long term loss of human resources needs to be revised. A circulation paradigm has emerged and the notion of brain gain has come to the forefront in the 1990s with basically two options: return or diaspora. Return has been particularly successful in Asian NICs since the late 1980s but with difficult conditions for replication elsewhere (strong economic growth prerequisite). During the mid-1990s, the diaspora option – i.e. the connection of the highly skilled expatriates with their country of origin in order to contribute to its development- emerged as a possible mitigation of the brain drain and of the shortage of adequate S&T human resources in the South. As a theoretical paradigmatic shift and revolutionary policy option it has come under scrutiny and has naturally faced a number of critiques questioning the magnitude of the phenomenon, the sustainability of diasporic initiatives and their impact on origin country development.

Exploring public and social policy frameworks to deal with migration and development produces a complex picture. There are no management general recipes since networks, countries, conditions and development processes are multiple and diverse. But there are lessons about effective ways of getting home and host countries as well as diaspora actors associated in productive manners. This requires a clear understanding of the network dynamics and of the mediation instruments or institutions that connect heterogeneous entities together.

Sociological concepts may be used in order to understand these dynamics and mediation processes. The specialised literature on social capital, socio-economics of innovation and networking provides adequate keys for the interpretation of what happens in the diaspora networks. States should reconsider their support of transnational actors like diasporas, who can actively contribute to achieving home country development goals and who could, over time, become instruments of social or even broader public policies for development.

This chapter is organized in three parts, each of which is divided into three sections.

The first part, ‘Migration flows and global social conditions’ deals with general migration trends and the interpretation of (limited) macroscopic data at an aggregate level. It then turns to focus on the flows among countries of the South, drawing on new data and particular

studies. Skills and gender bias in the current migration flows and policies are examined in the third section of this part.

The second part 'Impacts on education and health and the brain drain versus brain gain debate' analyzes successively the education issue in relation to skilled migration and the mobility of health professionals from the South. The problems raised are then put into perspective with the brain drain / brain gain debate.

The third part consists in 'exploring the diaspora brain gain option', i.e. the remote though effective contribution of expatriates to their countries of origin developments. The first section presents evidence showing the increase over time in diaspora activity, the second theorizes social linkages between home and diaspora actors in order to rethink the strategic design of public policy and prepare the way for a series of proposals in the third and last section.

I- Migration flows and global social conditions

This first part aims at providing a picture of the patterns of contemporary migration flows worldwide and to link these with differential conditions fueling the moves within the global society. It intends to look at the phenomenon beyond conventional international or bi-hemispheric divisions in order to grasp global dimensions and policy trends. However, it does not pretend to give a full picture, as these changing moves are not easy to follow or describe systematically and completely. Instead, it points to what we know, and to what we could do in order to know more, if we want to design adequate policies. This issue is dealt with in three sections: the first refers to general migration trends, the second focuses on the South and the third deals with the bias toward skilled migrants as well as gender issues in the actual global management of human resources.

I-1) General migration trends: interpreting the macroscopic data

According to the United Nations in 2005, 60 per cent of the world's migrants lived in rich countries where they represented one-tenth of the population. This is seven times the proportion in developing countries (one-seventieth) (Castles 2007). The distribution is as follows (Table 1):

Table 1: Migratory moves by hemisphere of origin to the one of destination (millions of persons)

South to North	62
South to South	61
North-North	53
North-South	14

source: Castles 2007 from the UN

According to these figures, the South-South flows represent a little less than one-third of the total and the North remains the world magnet with a much smaller native population and a clear majority of the migrants (61 per cent).

However, this rough global picture shows the importance of the flows among developing countries, almost as much as to the richest. A recent study by the World Bank shows a similar distribution of the flows to and from developing countries, though with slightly different figures, the flows among developing countries rising up to 74 million migrants but representing “only” 47 per cent versus 53 per cent of those toward high income countries (Ratha and Shaw 2007).

Table 2: Number of migrants (millions)

From	To	Developing countries	High-income countries	Total
Developing countries		73.9 47%	81.9 53%	155.8 100%
High-income countries		4.2 12%	30.6 88%	34.8 100%
Total		78 41%	112.5 59%	190.5 100%

source: Ratha and Shaw 2007, based on University of Sussex and World Bank data

This balance of global flows has an immediate impact upon interpretive assumptions made about the world situation and the consequent derivation of policies. If one looks at the situation from the North, the attraction seems essentially unilateral –the majority of migrants originating in the South versus a very small proportion of Northern emigrants toward this part --and the legitimacy to protect from massive entries appears obvious. This leads to the interpretation that the North-South divide is the main structural axis, along social and political lines (Castles 2007). But if one looks at the situation from the South, then migration to the North reflects only half of the destinations elected by migrants. And from this perspective, another analytical framework needs to be considered: South-South migration is harder to explain in terms of a “pull” (the “attractive” North) than in terms of a “push” (individual motivation for self-realization abroad).

This basic interpretation does not contradict the existing consensus about the importance of development for migratory flows. But it does question a classical and current policy option toward the problem: individual countries’ restrictive measures, as they have appeared in Europe and North America. If the North managed to close borders (which is unrealistic), the continuing pressure to exit would have to find another direction and Southern immigration would expand. When Northern countries try and discourage migration by implementing and signalling strong entry restrictions, human resource flows are diverted to alternative receivers. The result might be temporary relief for the North, but additional pressure is put on Southern countries who are not often well equipped to manage an influx of migrants. Unless decisions to take restrictive measures are coordinated globally, this pressure is likely to put a severe strain on the social and political infrastructures of these Southern countries.

Take, for example, the direct consequences that restrictive measures taken in the North are having on social development issues in the South. If we look at the situation in Africa today, intra-continental migrations have increased at the same time that socio-economic conditions are worsening for a majority of the population. The pressure exerted on African countries by the European Union’s decision to restrict migratory movements through Mediterranean border control with sophisticated technology (SIVE, *Système Intégré de Vigilance Extérieure Electronique*) and without any assistance devices, is a crucial problem (Sall 2007). Costly illegal channels and migratory agents have developed, as have labour exploitation and abuse, while stigmatization has generated ethnic tensions, human rights problems and violence, in transit/settlement countries on the southern seashore. The construction of similar control systems along other separation lines --Straits of Torres, between Australia and Indonesia (Le monde diplomatique 2006); the wall on the US-Mexican border (Lesne 2007)— will probably have similar effects. Countries which can afford such expensive control and security devices will transfer the burden of migration social management to those whose institutions are usually less equipped to deal with the problem.

This analysis leads to two orientations for both research and policy:

- Updated information and research is required on the border control devices put in place, and on their effects on the countries from where flows are being limited. This includes efforts from journalists, NGO professionals as well as academic researchers (especially statisticians, jurists, sociologists and anthropologists). The topic is relatively well covered but needs compilation, systematization and synthesis in order to get a clear and complete picture.
- The increasing security and social costs implied by this evolution does question the relevance of such a unilateral strategy limiting the free movement of people (Pécoud and Guchteneire 2005). The other strategy –multilateral- experienced with the UN Global Commission for International Migration (2005), High Level Dialogue on

International Migration and Development (United Nations 2006) and the Global Forum on Migration and Development (2007) is more promising. This is so, not only for ethical reasons in favour of cooperation instead of imposition, but also because it is the way to deal with the mechanisms of migratory dynamics rather than focusing exclusively on their manifestations.

I-2) Focus on the flows in the South

Between 1970 and 2000, according to the Global Commission on International Migration, “the number of migrants living in the developed world increased from 48 million to 110 million; compared with an increase from 52 million to 65 million in the developing world” (2005:93). Consequently, the proportion of developing regions’ shares of the world migrants tended to decrease (figure 2):

Table 3: Percentage of world migrants per developing regions 1970-2000 (percentages)

	1970	2000
Asia	34,5	25
Africa	12	9
Latin America	7,1	3,4

source: GCIM 2005

Two points may be raised from these figures:

- it is difficult to obtain more precise figures concerning Southern flows; due to data limitations at the macro level, qualitative and micro/meso studies need to be mobilized in order to identify trends and situations that may be reflective of general tendencies;
- the overall figures given above refer to the situation up to 2000 and may not completely describe recent changes; partial and anecdotal evidence tend to show that South-South flows may have increased at least in a couple of sectors and dimensions.

Despite a general lack of accurate data on developing countries, Ratha and Shaw (2008) claim to be able to produce a fairly accurate picture of bilateral migration flows using the University of Sussex database. They show that migration among developing countries has indeed increased though at a slower rate than to the North, with more recent data, up to 2005. However, they emphasize the fact that these figures represent a minimal estimate, as many illegal/unofficial movements are not captured in the statistics, probably more so than to the North.

Wickramasekera (2002:13) lists the reasons why migration statistics and data from Asia in particular and developing countries more generally are unreliable:

- they cover official flows while irregular migration is huge
- information on gender, skill, destination, and so on are not available
- when available the quality is not good
- unstable categories and surveys hamper comparisons in time and space
- bureaucratic transparency is hindered by political issues

Similar and other reasons are mentioned in various recent publications about Africa, generated by the International Labour Organization *African Labour Migration Initiative*, aiming at expanding the knowledge base, and understanding the difficulties, in migration studies (Shitundu 2006, for Eastern Africa; Ba 2006, for West Africa; Musette 2006, for Northern Africa). They all point to the need to get better data at the subregional level and provide a general picture of the flows that shows they are expanding significantly at this level.

The conclusion is convergent with Latin American studies emphasizing the existence of many subregional flows (Texido et al. 2003, Torales et al. 2003).

The recent study on South-South migration by Ratha and Shaw (2008) converges with this appreciation. Most of these flows are intraregional (80 per cent) and even between countries with contiguous borders. The two Southern regions for which migration to developing countries is superior than to richer ones – sub-Saharan Africa and South Asia- are also those with the highest rates of intraregional flows.

Micro and meso-level studies complete the rough statistical picture and confirm the importance of South-South flows, the diversification of destination and the increasing complexity of migratory moves.

The geographical scope of traditional Bolivian migration to the Northern provinces of Argentina, which borders on their neighbouring *altiplano* villages has tremendously expanded during recent decades. Buenos Aires has replaced these provinces and the migrants arrive directly there instead of moving slowly downwards, step by step, to the South as they used to do. The United States, Spain and Israël have become major destinations where relatives sustain a continual flow of arrivals (Cortes 2000, Cortes et al. 2003). Like their Bolivian neighbours, Paraguayans and Brazilians multiply their destinations and associated networks within or without Latin America, the turbulences of the local economies especially of Argentina and Uruguay at the turn of the century greatly disturbing –among other things- the traditional destination channels (Souchaud and Fusco 2007). Emigration in these two countries as a result of recent violent economic crisis from 2000 to 2003, also differs significantly from the one resulting from political repression under military dictatorships in the late 1970s and early 1980s (see Solimano in this volume). While low- and medium-skilled refugees chose Latin American host countries (Mexico and Venezuela for instance), highly skilled exiles tend to go farther away, usually to European countries (such as Spain, France, United Kingdom or Germany). Today, it is not surprising to find numerous engineers or postdocs in neighbouring Brazil with its strong universities or even in Chile where they can expand the narrow labour supply with adequate skills, while lower middle class people swept by dramatic unemployment waves try to settle in Spain or Italy, following ancestors' origins in a reverse migration process (Meyer et al. 2007). In contrast to this picture, in Central America, the migration system between Nicaragua and Costa Rica has changed with the United States becoming a major attractor but the skill contents of the flows remain highly differentiated: those crossing the southern border to Costa Rica having a lower average education level than those migrating to North America (Medina 2005).

The African situation exhibits similar features with even more intensity. Scholars converge in evaluating the continental emigration rate as the highest one often referring to higher absolute figures than the global ones usually presented and referred to in figure 2 above. The estimate is between 35 to 40 million¹ of which intra-continental migration constitutes a large majority - about 90 per cent - of all migratory movement in the sub-Saharan region. Though these features correspond to traditional links from precolonial times, transformation are also quite noticeable in that part of the world, mainly with diversification of the flows, gender composition with rising feminization, and complexification of the relations (Adepoju 2006). Interestingly, the regional (sub-Saharan) migratory intensity is neither at the expense of continental flows (with Africa as a whole), nor with Europe and even the world. Migrations have developed creating a space of circulation where sub-Saharan Africa and the Arab World are deeply integrated (Gregoire and Schmitz 2000). The multiple African connections to

¹ Robin 1996; Bredeloup 2002; Sall 2007

Western Europe are reported in numerous case studies: migrants are responsible for many social and commercial networks linking Europe to the sub-Saharan region and Maghreb (Peraldi 2002). The global links between African communities expatriated in West Africa, North Africa, Western Europe and North America, through religious, personal or other reasons, have also been documented precisely.² Therefore, migration processes today, when observed from the point of view of the actors themselves (especially in Africa), are calling into question the notion of borders in general (cross-country, natural, continental, North-South) and appear to be shaping a global circulation space through the construction of transnational communities.³

This is true of Asia as well. From the intense traditional migratory exchanges among Asian countries and between these and colonial powers, the extension to new regions of the world and new types of migrants and activities is visible today (Wickramasekera 2002; Hugo 2003). This is particularly so in skilled sectors. Cases of Taiwanese high tech returnees from North America to their motherland and subsequent reemigration to the People's Republic of China have been reported since the early 2000s (Zweig 2004). Members of the Asian community in the professional middle class of North America are now known as the "astronauts" of the Pacific Rim because of their constant commuting since the beginning of the 1990s, to and from their countries of origin (Wong and Salaaf 1998; Zhong 2000). More recently, the upsurge of the information technology industry in India and the Chinese technical and commercial cooperation expansion in Africa appears to be generating bi-continental flows of skilled labour migration. Unsurprisingly, the emergence of new techno-industrial powers is having an impact on the deconcentration of the flows and the diversification of origins and destinations. However, these recent trends, locally visible, have not yet appeared in the macro level data.

In terms of social policy, poverty reduction and development, the main features provided by general figures of South-South migration (Ratha and Shaw 2007) deserve attention:

- flows occur mostly among neighbouring countries;
- 87 per cent of migrants to less developed countries come from the same type of countries;
- the regions with highest rate of intraregional flows are the poorest in the world (sub-Saharan Africa and South Asia);
- more than one-third of Southern migrants do not go to a richer country and another significant part just go to slightly richer ones;
- environment as well as crises generate significant flows among developing countries;
- incomes produced by employment through South-South migration are lower than South-North, and remittances are also much less substantial; and
- vulnerability and exploitation of migrants' conditions is frequent in South-South migrations.

This section's findings highlight a number of points:

- In terms of research, there is a clear need to have better data in order to get a more precise picture of movements within the South. Scholars from the three regions surveyed mention the importance of coordination, in order to allow systematic comparability. Efforts have been made in that direction by several international organizations (UNO, ILO, IOM, UNESCO and now UNRISD). To capitalize on such

² Bredeloup 2002; Feldman 2005; Alioua 2007

³ Faist 1999; Glick Shiller et al. 1995; Portes 2001

valuable efforts, coordination among their research services and perhaps with other IGOs holding a strong expertise (like World Bank and OECD) would be the first step to provide uniformity of methods and categories.

- The conventional view in migration studies that migrants are usually not among the poorest members of national societies of the countries of origin is biased. It reflects the traditional focus on South-North migration (see De Haan and Yaqub in this volume). In light of South-South flows, it appears that long distance migration with high income differentials does not offset cross-border moves among poor populations. This combination of poverty and mobility affects home and host countries with limited resources for intervention, therefore pointing to the need of other cooperative investments and instruments for the management of both migration and development.
- In terms of policy, the fact that there appears to be a continuum rather than a divide between North and South in the current global migration processes, has a strong conceptual implication. It means that the construction of a transnational civil society is taking place, and confirms with overwhelming evidence that the “globalization from below” (Portes 1999; Vertovec 1999) hypothesis is valid. The circulation established – transnational, transregional, transcontinental and transhemispheric- shows irreversibility. This condemns unilateral closures as policies of the past, aligned on an ancient paradigm.
- Conflicting approaches and debates are reported by political scientists on transnationalization processes and the emergency of world civil societal movements.⁴ Although the direction of these trends is uncertain, the evidence points to the intensity of changes, throwing doubts on the usefulness of immobilist policies.

⁴ Badie and Smouts 1992; Badie 1995; Rosenau 2003

I-3) Skills and gender bias in the current migration flows and policies

It is only for the last ten years that multicountry statistical analysis of migration broken down by education level has become available. Several studies have produced data, computed these, compared them, sometimes extrapolating for the missing ones. The major purpose of these studies has been to characterize the brain drain phenomenon addressing such questions as: is the skill content important in migration? What are the rates of educated versus non-educated migrants? Do these vary significantly between countries? Are there winners and losers in these exchanges of skilled personnel? What evolution can we see in the last decades or so?

The first study published by the IMF at the end of the 1990s (Carrington and Detragiache 1999) has been extensively used as a reference despite severe methodological limitations. Based essentially on United States immigration census data, it extrapolated these to infer supposedly realistic figures for other receiving countries through OECD data. It nonetheless had the immense advantage, compared to former surveys, of allowing a multicountry comparison, and of establishing rates of skilled and non-skilled migrants on equivalent populations in the receiving as well as in the origin countries. Several studies followed, published under the auspices of the World Bank and the OECD and which constantly improved country coverage, the scope of information and the accuracy of the data.⁵

Though each of these studies slightly differs on the data used and the interpretations expressed, they all share common sources (census data of OECD countries) and comparison with educational attainment data (Barro and Lee 2000). Their findings are globally convergent:

- there is indeed a skill bias in migration since the population with tertiary education is overrepresented compared to general immigrant population in OECD member countries;
- OECD countries do benefit from skilled migration: even though some may have a significant deficit vis à vis other OECD members, when checked with inflows from non members, their balance between exits and entries is positive;
- there is a definite acceleration of expatriation since 1990, for the skilled population essentially;
- among developing countries providers of skilled expatriates, huge differences exist, going from rates over 80 per cent (Jamaica) of skilled personnel abroad to less than two per cent (Brazil, for instance);
- size of the country is inversely proportional to the rate of expatriation (the bigger, the better); development index is not extremely significant (though GNP/per capita correlated with other social factors like urbanization or industrialization is significant); geographic position (insularity and proximity to a big magnet impact negatively); education level (average schooling is positively related, the lower the number of highly educated, the higher the expatriation rate) as well as historical links (colonial relations) have an incidence on the rates, proved by specific correlations.

⁵ Adams 2003; Docquier and Marfouk 2004; Dumont and Lemaître 2005a; Docquier and Rapoport 2005; Dumont and Lemaître 2005b; Beine, Docquier and Rapoport 2007

Beyond evidence on OECD countries, is it possible to identify anything like a South-South brain drain? One would expect that the skill content of less selective migration would be lower (Ratha and Shaw 2007; Hujo and Piper 2007) however regional surveys and studies show the opposite, especially in Africa. Patterns of human resource flows have been identified : people move from less developed countries to developing ones and from these developing countries to middle income economies (for instance, from Sierra Leone to Ghana and from Ghana to South Africa). This hierarchy of positions suggests a waterfall effect with outflows of human resources moving downstream from the less developed, to the developing, to the middle income countries.⁶ Vacant positions resulting from migration are filled by new inflows except for those less developed countries at the high end of the waterfall. Therefore, the international circulation of skilled people has different impacts according to the position of source and receiving countries. Compensation effects may happen for some but those at the bottom do not benefit from them.

In terms of gender composition, a recent study delivers interesting results (Dumont et al. 2007). It shows that the migration of skilled women has increased and is now almost equivalent to that of men, confirming a general feminization of migrations (Piper 2007). Some countries even send or receive more highly skilled women than men; this is the case for the Philippines and Sweden respectively. One factor explaining this observation appears to be the extent to which a country's education system promotes women. When the level of female educational achievement is high in systems biased against them, they will tend to leave their home country. In this case, the tertiary educated women expatriation rate reaches 17.6 per cent versus only 13.1 per cent for men. These average figures reflect the situation of almost every origin country of the South toward OECD receiving countries. However, there are significant differences per regions of the world: while the male/female expatriation rates exhibit a one point difference in Asia it is three in Latin America and more than ten in Africa.

Table 2: Average emigration rate to OECD per region and gender, for the tertiary educated:

	Male	Female
Asia	6.1%	7.3 %
Latin America	17.9%	21.1%
Africa	17.1%	27.7%

Source : Dumont et al. 2007, p 13

It appears also that the lower the GNP per capita, the higher the female expatriation rate, probably because of restricted labour market opportunities in such countries. In addition to this, a striking correlation exists with human development indicators such as infant mortality rates and secondary school enrolment. The expatriation rate of skilled women –not of low skilled and of unskilled- have a significant negative impact on these indicators in the countries of origin. It suggests that their role in education and health does not find compensation while for lower levels of skills, effects of emigration may be compensated through remittances. This hypothesis deserves more evidence and analysis to be confirmed but it should definitely be included in the global care chain debate.

Such findings provide a robust evaluation of the human resource flows, showing:

⁶ Meyer et al. 2001; Mc Donald and Crush 2002; Gaillard and Gaillard 2006

- OECD migration policies are increasingly emphasizing selection criteria based upon skills⁷ and these are having a definite impact (Kapur and Mac Hale 2005); South-North migrations include more qualified people than before and this is likely to be a more distinct pattern than for South-South flows, but data on this point are not clear.
- Shortcomings in terms of exhaustivity of the results. As receiving countries, only OECD member countries are considered; though this is explained by the lack of sufficiently reliable data from other countries (see sections 1-2 above), it does leave a doubt concerning new possible magnets (examples include Brazil, India and China).
- Also, the reduction of skills to educational attainment (tertiary education degree holders) presents some weaknesses and should be looked at critically. Further research would be needed to complete the description, with other data that are more precise on these specific points. Skill contents and intensities cannot be captured only by a reference to higher education. But, no simple solution is at hand, with contradictory approaches between the need of macroscopic indicators for international comparisons and the descriptive accuracy of complex situations.
- Finally, the social efficiency of skills' transfers is certainly far from optimum. Reports on qualified immigrants with OECD countries show that many of them do not access jobs corresponding to their qualifications leading to underutilization, misuse or waste of human resources. As a consequence, the migrants suffer from declassification (OECD 2007, chapter II). Though there is no equivalent data for non-OECD receiving countries, there is no reason to think it is different. Knowledge workers seldom are immediately adapted to match local labour market conditions and productive profiles.

⁷ For instance, the EU recent decision to go for a *blue card* selective scheme is just the latest of a number of measures taken elsewhere. See Sawahel (2007).

II- Impacts on education and health and the brain drain versus brain gain debate

The negative impact of teachers and physicians' emigration is repeatedly mentioned in the literature. However, if both education and health are crucial issues for social and human development, these two professional sectors have different migration profiles.. In the first, little evidence of educational staff emigration/immigration exists whereas, in the second large numbers of midwives, nurses and medical doctors are on the move. Both questions will analytically be studied separately below.

II-1) Skilled migration from the South and the education problem

If one wants to grasp the importance of education in relation to out-migration in a systematic manner, a bibliographical analysis is useful. It shows that for 1,816 articles published between 1955 and 1995 on the mobility of the highly skilled, roughly 30 per cent of these articles dealt with the question of students and education (Gaillard and Gaillard 1998:20-21). Interestingly, article production on this issue is inversely correlated with the number of articles produced on brain drain and brain gain. Publication counts show that the "brain drain" issue was a subject of concern in the 1960s, 1970s and until the mid-1980s whereas the student/education issue started to receive attention in the 1970s to become the focus of attention and peak in 1990. The sharp decline of publications in this subject area correlates with a constantly increasing level of article production on the brain gain/reverse brain drain approach. Without pretending to summarize the approximately 550 references on this last topic, with very diverse methodologies, scope and standpoints, a number of observations can be made:

- 1) The attention brought to educational issues in relation to migration is linked to the major increase of foreign students, especially in OECD countries, noticed by international organizations in the late 1970s and 1980s?.
- 2) This coincided with a progressive diffusion of human capital theories which put an emphasis on individuals' education in the constitution of wealth through the improvement of human resources.
- 3) The investments made by states, collectivities and individuals in education suddenly appeared to be highly volatile when their carriers could fly and cash on these, far from the place of initial production.
- 4) The question of skills acquisition, the financial efforts needed to build these qualifications, and their potential loss through migration became a central brain drain theme and raised many technical questions.
- 5) The economic evaluation of gains and losses according to the financial and educational systems, the number of years of schooling, the calculus of productivity and the income differentials between countries, dominated the debate.

Two major approaches were expressed. The nationalist model defended the idea of a loss of quantifiable human resources that required compensation through taxation (Bhagwati 1976) to the benefit of "exporting" countries. The idea was strongly supported by the UNCTAD since the end of the 1970s and during the 1980s (UNCTAD 1977, 1987). The internationalist model presented the opposite view, that these flows reflected the natural movement for optimizing skills at the international level, with allocation of human resources to where they were most efficient and remunerated (Johnson 1968; Kindelberger 1968, 1977). Excessive constraints on these moves would damage universal progress of mankind as a whole.

In spite of many workshops and studies implemented by UNCTAD, the taxation option never took off, for technical as well as political feasibility reasons. However, it resurfaced recently in a UNDP development report in 2002, by Kapur and Mac Hale (2005, chapter 10) where it was proposed as a way to curb the massive exodus on health professionals from Africa (Dumont and Meyer 2003). In absence of any concerted regulation at the intergovernmental level, the so-called internationalist view prevailed though not without isolated attempts to accommodate it to particular countries educational profiles. Third World countries were thus invited not to invest in higher education, for instance, and to focus on primary and secondary schooling, since their investments in tertiary education was likely to be captured by foreign labour markets (Haque and Kim 1994).

Interestingly enough, theoretical discussions about the relationship between education and migration have come back to the forefront recently and today polarize the attention in the brain drain/brain gain debate. The basic new argument that emerged in the late 1990s, contradicting the one of Haque and Kim (1994), is that the perspective of employment abroad is a strong incentive for individuals to invest in education and training (Stark, Helmenstein and Przkawetz 1997, 1998). With a labour market no longer bounded by national frontiers, with the opportunity for better wages abroad and the selection bias in place in OECD countries requesting high education level, human capital formation is stimulated at home. It naturally exceeds what foreign countries actually need and therefore a surplus of highly skilled manpower is left available for the origin country.

The empirical statistical evidence brought by scholars since the beginning of the decade (see section I-3 above) tends to give credit to these theoretical constructions. Comparing the educational attainments of migrants per country of origin, the proportion of tertiary educated people and the economic growth performance, sophisticated econometric models show that “[there is]... a positive and highly significant effect of migration prospects on gross capital formation (that is, the change in the proportion of tertiary educated among the native born – emigrants included- over the period 1985-90)” (Docquier and Rapoport 2005:12). The authors distinguish therefore between the losers and winners in the brain drain: small countries with a low rate of local human capital are in the former group, while the bigger ones and emerging economies would be in the latter. They find that a majority of the countries are “losing” in this process but that those winning represent 80 per cent of the population considered.

Those findings have been questioned directly or indirectly by a number of scholars.

- 1) If theoretical prediction is right, the correlation between migration and formation of human capital should be confirmed by an increasing enrolment in higher education in the same countries. However, this does not seem to be the case (Faini 2003), throwing doubt on the causality of such correlation.
- 2) In most developing countries, education costs are born by governments and the limiting factor of gross human capital formation is not the lack of incentive to learn but the scarcity of resources devoted to higher education (Dumont and Lemaître 2005b).
- 3) At least until recently, a majority of skilled workers originally from the South and working in the North were essentially educated in the host country, not at home (Meyer 2001; Meyer et al. 2001), thus minimizing the incentive mechanism explanation. The new data mobilized by Beine et al. (2007) does not eliminate doubt on this post-migration training.
- 4) The distributional or social effect of the dynamic generated is suspect. Commander et al. (2004) point to the fact that even in the case of such an incentive, with a high

selection bias in receiving country, it would only work for the most highly skilled in sending countries and would have little if no effect on those below on the skill ladder.

This leaves a number of perspectives for future works in terms of research and policy design:

- If the biggest countries (China, India, Brazil) do experience a brain gain through brain drain –the opposite of the others’ experience- is this not partly related to the low skilled expatriation rate they exhibit and the significant return and diaspora migration benefits that they receive? Beyond (or ‘in addition to’?) modelling techniques, field work is necessary to track the cause and effect relationships.
- Selective migration policies should be careful of extrapolating these exceptions to “normal countries”. In Africa, where the rate of expatriation is much higher, an incentive to attract more skilled personnel may have devastating effects on local innovation structures where critical mass of knowledge workers is not reached (Meyer 2006) and is severely condemned locally by the African Union (Sawahel 2006).
- Finally, the following question has to be raised: for which purpose do countries invest in human capital? In the Maghreb countries, the unemployment rate of tertiary educated people is three times higher than in the active population as a whole (Geisser 2000). There are very few employment opportunities and the surplus of degree holders leads to a well-known phenomenon of brain waste (Gaillard and Meyer 1996) which today is becoming a serious political and social burden.

II-2) Mobility of health professionals from the South

The mobility of health professionals has long been associated with the brain drain since this concept emerged in 1956 in a document of the British Royal Society voicing fears of large scale exodus of British scientists and medical doctors to the United States. Although professional migration (engineers, researchers, students and computer specialists) has been the focus of attention for many years, the international movement of medical practitioners and nurses has come to occupy central stage over the last five years. Unlike the education sector, where the migration issue has mostly been tied to students and only exceptionally to teaching staff issues, in health, the main problem of medical staff emigration is to disrupt health care delivery in Southern countries. . It is therefore very important to look at the combination of both –migration and labour market shortages- to understand how one affects the other, and by the same token, social development in the origin countries.

It is impossible to synthesize here the many recent administrative, media, academic and policy studies produced on this topic from many parts of the world during the last few years. What can be said is that, in spite of this interest and the importance of the issue, as a very recent and comprehensive study points out: “the evidence remains scarce and limited, if not anecdotal” (OECD 2007:162). This has not helped the debate to escape from speculation and to look for well informed public and institutional policies. However, a tentative summary of the main points brought by analysts would highlight the following:

- 1) The recruitment of foreign-trained medical personnel has increased in OECD countries for the last 25 years, with a sharp acceleration since the turn of the century. Though India and the Philippines remain the main providers of doctors and nurses respectively (15 per cent in each case), there is a shift in origin countries with a growing share of small countries (OECD 2007).
- 2) Diversification of destinations is also noticeable. If the United States and the United Kingdom remain the major attracting countries (47 per cent and 12 per cent of the OECD area), many flows are increasingly directed to other parts of the world. The mobility (increasingly short-term) from the Philippines or southern Africa to the Gulf States or from West, Central and southern Africa to South Africa, or from Cuba to a number of Latin American and African countries, is reported extensively.⁸
- 3) Feminization of this process has also been noticed by observers. It is recent and certainly meaningful in terms of changing –social as well as geographical-orientations. However, female health workers are –not unexpectedly- more concentrated in nursing and midwifery and underrepresented among medical practitioners, therefore in the middle and lower parts of the medical socio-professional ladder (Adepoju 2006; Dumont and Meyer 2004).
- 4) Reasons for emigrating combine both push and pull factors. Attraction for better wages and career conditions are mentioned in various surveys. But there is no specific policy of OECD receiving countries targeting health professionals’ recruitment. They are simply included in the selective migration processes in favour of the high skilled in general (see sections I-3 and II-1 above). Degradation of working conditions (increasing workload) and poor professional opportunities at home seem to be important factors for migration (Dumont and Meyer 2004; Awases et al. 2004).
- 5) Emigration seems to affect origin countries in very different manners. Huge proportions are reported for small countries like Sierra Leone, Liberia, Ghana, Haiti,

⁸ Dumont and Meyer 2004; Awases et al. 2004; Adepoju 2006; OECD 2007

Benin and Malawi (a highly publicized case, see Capelle and Mourier 2004) while the expatriation rate appears negligible for the bigger ones like China or India for which the provision of health care services does not seem altered at all (OECD 2007).

- 6) International migration is not isolated from internal dynamics, for which moves of medical staff from rural to urban sectors are reported. As health care services shortages do affect the former to a larger extent than the latter, migration probably impacts on the home country population in a discriminatory manner, at the expense of the poorest and most underprivileged areas (Dumont and Meyer 2004; Awases et al. 2004).

At an aggregate level, however, migration does not seem to be a major determinant of shortages of staff. When such shortages –evaluated by the WHO for each main world region– are compared to migration figures, the gap stands out clearly. For Africa and South East Asia, concentrating most of the 57 countries for which critical shortages have been identified (WHO 2006), the expatriate proportion in OECD countries represents only 12 per cent and 9 per cent of the numbers respectively (OECD 2007:178-9). This leads to the conclusion that: “... the global health workforce crisis goes far beyond the migration issue (...) Thus international migration is neither the main cause nor would its reduction be the solution to the worldwide health human resources crisis, although it exacerbates the acuteness of the problems in some countries.” (OECD 2007:163).

The findings summarized in this section draw attention to four crucial points:

- In terms of research there is a need, again, for better data on what is happening among developing countries, as the growing Southern flows may impact on the specific situation of some countries, more than OECD figures might indicate.
- Within the South, the obvious unequal situation between small/poor countries and big/emerging ones, and between rural and urban areas, is clearly at stake for any social policy design with regard to equity and human development issues.
- The question of specific attention to be drawn to single countries should not be minimized, as aggregate data may be crudely misleading. For instance, if Tanzania’s physicians’ expatriation rate of about 50 per cent according to the OECD (recorded figures) is added to perceptible though unrecorded evidence of health professionals flows toward southern Africa and non-OECD countries, the proportion may be close to 100 per cent. Moreover, if this specific figure is compared to the very low density of doctors in this country (under one in ten thousand), there is no doubt that the emigration damage is very important.
- Several initiatives have seen the light of day with regards to global health workforce management. The WHO-hosted Global Health Workforce Alliance (issued from the Joint Learning Initiative on Human Resources for Health and Development) is not without similarities with the GCIM and GFMD processes regarding migration (see conclusion of section I-1). The interaction between both efforts could appropriately be encouraged.

II-3) From brain drain to brain gain analysis

The policies adopted by developing countries with regards to the migration of their highly qualified citizens may be classified and summarized in two basic approaches, according to the interpretation given to this phenomenon. The first one, the brain drain approach, considers the negative effects of migration -a loss of skills for the country of origin- and reacts to these. The second one, the brain gain approach, works on positive aspects -the existence of highly trained national human resources abroad- to use them as opportunities. Both approaches have generated policy options.

The countermeasures to brain drain have basically focused on three options: taxation (compensatory financial measures), regulation of flows through international norms, and conservation (control of emigration):

- 1) Taxation has received much attention and culminated during the second part of the 1970s and the first part of the 1980s. It has not been translated into actual decision making but recently resurfaced in spite of this (see section II-1 above).
- 2) Regulation through international norms has early been proposed by organizations within the United Nations system (UNCTAD 1983/84; Pires 1992). These recommendations have not been enforced and the developed countries more than ever apply selective immigration policies in regards to highly qualified manpower (see section II-1 above).
- 3) Conservation (restrictive) policies aiming at the retention or recuperation of skilled people have been implemented in many developing countries. But their success has been limited as well. They intend to stop or reverse the outflows without addressing the causes of the problem, that is, the absence of a social, industrial and technological base that would absorb this manpower.

Brain gain strategies have increasingly developed while the limits of the traditional options became more apparent. There are two ways to realize the brain gain: either through the return of the expatriates to the country of origin (return option), or through their remote mobilization and association to its development (diaspora option).

The first alternative to emerge has been the return option. Though this option appeared at the beginning of the 1970s (Kao 1971), it rose gradually through the decade (Glaser 1978) and witnessed extensive developments in the 1980s and 1990s (Song 1991; Swinbanks and Tacey 1996). The return option departs from the conservation policies in a crucial aspect: recovering highly qualified professionals is part of a comprehensive development policy, including and often integrating scientific, technological and economic dimensions. It is not surprising that the most successful cases of return policies are to be found in the New Industrial Countries (NICs), in countries with S&T and industrial sectors already quite advanced, where the manpower may effectively be employed (for example, India, Singapore, South Korea and Taiwan). Strong programmes to repatriate many of their skilled nationals abroad have been put in place since 1980. They have created at home the networks in which these returnees could effectively find a place and be operational. However, these countries are, not surprisingly, the ones that could afford to significantly invest in Science and Technology material as well as human infrastructure. They had started to build the research and techno-industrial web which could appropriately sustain such Research and Development activities employing returning scientists and engineers.

Obviously the success of that option depends very much on this specific capacity. Such a prerequisite is not easily matched by many developing countries.

The diaspora option is more recent and proceeds from a different strategy. It is based on the assumption that many of the expatriates are not likely to return. They have often settled abroad and built their professional as well as their personal life there. However, they may still be very concerned with the development of their country of origin, because of cultural, family or other ties. The objective, then, is to create the links through which they could effectively and productively be connected to its development, without any physical temporary or permanent return. This type of distant cooperative work is now possible as cases of international research projects or multinational corporations' daily activities have already demonstrated. Moreover, relationships between expatriate intellectuals and their mother country have often existed in the past. What is new today, is that these sporadic, exceptional and limited links may now become systematic, dense and multiple (Meyer et al. 1997; Meyer and Brown 1999).

Drawing lessons from the two brain gain approaches, the perspectives may appear as follow:

- A crucial advantage of the diaspora option is that it does not rely on a prior massive infrastructural investment, as it consists of capitalizing on already existing resources. It is thus at hand for any country which is willing to make the social, political, organizational and technical effort to mobilize such a diaspora. However, the ability to mobilize and sustain such a diaspora is at stake.
- A promising perspective in such a strategy is that through the expatriates, the country may have access not only to their individual embodied knowledge but also to the socio-professional networks in which they are inserted overseas. This is what is at stake in such initiatives around the world today. A number of countries have indeed made use of the "diaspora option".

III – Exploring the diaspora option

Networks of highly skilled expatriate professionals recent though authentic diasporas that have appeared during the 1990s. They fit with minimal criteria of diasporic forms: namely geographic dispersal from a common origin together with active social ties.⁹ Two forces shape their collective identities: the knowledge status of their members and their drive toward development purposes. At the opposite of the normative statistical category of “highly skilled” in studies of the brain drain, with tertiary education as the criteria for inclusion, the knowledge base of these diasporas is defined by the members. Some refer only to scientists and engineers, others include entrepreneurs and managers, artists and students, among others. The common feature of these networks is the emphasis on the transfer of knowledge as their main contribution to the development of the origin country. This is definitely part of social remittances, *par excellence* (Hujo and Piper 2007). The way that intangible contributions such as these may produce concrete development depends on complex social dynamics and organizations, which are explored in this section.

III-1) Growing evidence on diasporas initiatives

Five censuses of diasporic highly skilled networks have been carried out at different times by various teams, aiming at grasping the magnitude of the phenomenon, beyond isolated case studies.

- 41 expatriate networks of “developed” and “developing” countries were identified at the occasion of the June 1999 Unesco World Science Conference (Meyer and Brown 1999);
- 106 networks referring exclusively to developing countries, in a state of the art about scientific diasporas, done by a panel of international experts in 2002 and published in September 2003 (Barré et al. 2003);
- 61 expatriate networks of “developed” and “developing” countries, in a report prepared for the World Bank, “Diasporas and Economic Development: State of Knowledge” (Lowell and Gerova 2004) in September 2004;
- 158 networks referring exclusively at developing countries, in 2005, (Meyer and Wattiaux 2006) ;
- 191 networks of both developed and developing countries, in 2006 (Tobin and Sallee 2006).

There is overwhelming evidence on the current existence and activity of Diaspora Knowledge Networks (DKN), although with variations for the coverage per regions of the world (table 4)

Table 4 : Breakdown of Diaspora Knowledge Networks by regions of origin

Regions	Identified networks	Networks active in 2005	Number of home countries
Latin America	25	15	9
Africa	51	27	11
Asia	82	56	18
Total	158	98	38

⁹ Cohen 1997 ; Vertovec 2002 ; Ma Mung 2005

The cases of China and India are among those most developed and a few lessons may already be extracted from their detailed description (Xiang Biao 2006; Leclerc and Meyer 2007).

1) China

Among the points more specific to the Chinese case which explain the magnitude and success of its highly skilled diaspora mobilization, the following may be emphasized:

- estimate of the population of OCPs (Overseas Chinese Professionals) in the world is about one million with high concentration in North America;
- there are more than 200 registered associations of these OCPs registered by the OCAO (Council for Overseas Chinese Abroad Office);
- a definite policy (*wei guo fuwu*) has been set up in the late 1990s promoting linkages with talents in the diaspora;
- five ministries and a high number of provincial governments agencies as well as para-statal entities are involved in programmes and activities with highly skilled expatriates;
- short-term visits, collaborative projects between OCPs and home academic communities, senior expatriate scientists lectures in China, occasional technical advice, local recruitments through big fairs or more selective encounters are part of the many activities displayed by the diaspora and counterparts in China.

The role of the associations of OCPs, whose number has increased during recent years, seems a key factor in the expansion of links between formal and informal networks. The Internet happens to be the major medium used by OCPs to stay connected with the country and among themselves.

2) India

The role of the diaspora in the Indian IT industry's developments has been particularly discussed during the past few years. Scholars unanimously think this role has been important, especially in lowering reputation barriers to trade, but divergences are recorded with regards to the priority given. Some authors (Lucas 2004; Kapur and Mac Hale 2005) subordinate the expatriates' input to local factors in India (mainly cheap highly skilled labour), while others see the intervention of prominent NRI and associations in the United States as crucial and determining (Saxenian 2002; Khadria and Leclerc 2006, Pandey et al. 2006).

The Indian high tech sector's development is correlated to the impressive expansion and intensity of professional associations of NRI/IT specialists and engineers in the United States and in California in particular. After China, India ranks first among the countries with Diaspora Knowledge Networks working for the development of origin countries. Moreover, to these DKN with clear transfer and development purposes, one should add the many professional associations serving the careers, entrepreneurial, business endeavours and networking activities of Asian/Indian community members in the United States. The profusion of actors and intermediaries makes this milieu extremely dense and fertile. This situation is matched in India where national and local governments as well as universities, technology institutes, professional associations, federations, commissions and chambers of commerce are very present and active. Between India and America, continuous circulation of human and material agents feeds both poles with complementary tasks and objects. Interactivity in this multiple and dispersed milieu is ensured by a systematic and creative use of computer mediated communication.

III-2) Theorizing social linkages between home and diaspora actors

The increasing evidence on diaspora knowledge networks has gradually made possible more precise analysis of their results or shortcomings. A number of articles produced by academic research or cooperation agencies have brought together a diverse set of case studies useful for assessing the strengths and weaknesses of the brain gain diaspora option: on the Colombian Caldas network,¹⁰ on the South African Network of Skills Abroad as well as the South African Diaspora Network,¹¹ on the Latin American early experiences (Lema 2003), on Argentina's various attempts (Kuznetsov, Nemirovsky and Yoguel 2006), on the Indian numerous examples,¹² on the Philippines (Opiniano and Castro 2006) and Afghanistan (Hanifi 2006), on Armenia (Minoian and Freinkman 2006), on the huge Chinese diasporas (Yugui Guo 2003; Xiang Biao 2006) and on synthesis compiling various of these contributions and others.¹³

It is time to capitalize on this harvest of case studies, not only in an evaluation perspective through comparative analysis of individual experiences with successes and failures, but also by drawing systematic lessons from these many stories and conceptualizing the general dynamics at work in this diasporic scheme. With this overall understanding of particular situations we might be equipped to think about proper networks configurations and modalities.

1) Human capital, social capital

It is often said that, through the diaspora option, the country of origin is able to have access to the social capital accumulated by the expatriates. However, this refers to an extensive version of social capital, much more than simply interpersonal relations. It includes obviously human capital (Becker 1962) but also intellectual capital (Stewart 1997), symbolic and cultural capital (Bourdieu 1979), institutional (Rey Valette 2006), technical, physical, financial capitals as well, since equipments, infrastructures and money are susceptible of being mobilized too. In the case of the South African Network of Skills Abroad, some of these have been estimated. Human capital and social capital indicators have been defined, in a reductive though analytical manner (Meyer 2001; Meyer et al. 2001). The diploma and the socio-professional positions have been chosen as proxies, respectively for the former and the latter. Both capitals are very high in the diaspora: the rate of PhDs is twice as much as in the equivalent qualified population at home (figures from the year 2000); the proportion of higher positions in professional hierarchy among the expatriate professionals is about three-fourths. While the former (human capital) requires the reconstruction of an adequate context in order to be intensively used if repatriated, the latter (extensive social capital) may be available in a remote manner.

The goal, for the country of origin, is to tap into the expatriate professionals and the resources connected to them. Due to the executive positions and power these professionals hold, their capacity to mobilize important resources is globally very high, making the potential multiplier effect quite large. For such reasons, the involvement and commitment of even a small number of expatriates may be decisive, as shown by anecdotal evidence on other diasporas (for instance on the case of Chile, see Kuznetsov 2006:5-6).

¹⁰ Meyer et al. 1997; Charum and Meyer 1998, 2000; Chaparro et al. 2004

¹¹ Brown 2003; NRF 2005; Castro Sardi 2006; Marks 2006

¹² Khadria 2003; Pandey et al. 2006; Leclerc and Meyer 2007

¹³ Barré et al. 2003; Westcott 2005, 2006; Kuznetsov 2006

In terms of social capital approaches, DKN exhibit the three properties mentioned by some theoreticians (proposed by Woolcock 2000). “Bonding” refers to the internal relationships within the network tending to build up a community. “Bridging” refers to those associating distant and asymmetrical partners of different countries. “Linking” happens among the many peers connected through the network. According to Brinkerhoff (2006a, 2006b), the three properties are very much interdependent in the networks dynamics: bridging may be efficient because bonding is strong. The confidence acquired among members encourages them to give access to third actors, for example.

2) Identification processes

The evidence also demonstrates that in most cases, a significant part of the highly skilled expatriates are willing to help their country of origin. The individual motivations may be quite diverse: guilty feelings after having left home and “made a fortune” away; activist commitment or sentimental attachments; opportunities to keep in touch with relatives; expectations about professional developments; social or entrepreneurial expansion; or occasion of international connections and cooperation agencies support. . Whatever the reasons, the diaspora members are, in principle, sensitive to the home country’s situation, open to its offer and available for cooperation. Even though only a fraction may actually respond to its call, the occasional surveys of non respondents have shown that there was actually less profound disinterest than simple ignorance or lack of awareness of home country’s needs. The desire for networking, therefore, usually comes from both sides: the diaspora and the place of origin.

The motivation behind DKN creation, development and the commitment of their members deserves deeper explanations. The mutually reinforcing process between human and social capital has been pointed at (Helliwell and Putnam 1999; Denny 2003) and the highly skilled expats propensity to gather and build associations fits with this pattern (Banks and Tanner 1998; Gibson 2001). However, at the same time, the opportunity cost of professionals to get involved durably into nonprofit activities is comparatively high (Brown and Lankford 1992). This also corresponds to what happens in many DKN: to keep the highly skilled expats in the network is difficult; more than to get them in, because their time is relatively less available than for other working or non-active persons. Underproductive endeavors are thus quickly punished by the “exit” of those who might have embarked initially with enthusiasm.

However, beyond individual dispositions, there is an interesting collective process which is at work in the constitution of DKN. As mentioned by Brinkerhoff (2006b), the identity expression in such networks is very important. Our own results on Colombian and South African networks have shown that these identity expressions are very much constructed by the actors themselves when they decide to get involved in the network (Meyer et al. 1997; Meyer, Kaplan and Charum 2001). In such a constructivist approach to identity shaping, the role of communication technologies is crucial.

III-3) Rethinking strategic design and public policy

Many testimonies of DKN members point to the fact that passivity – a generic term for absence of (re)activity- in the country of origin, led them to stand aside, sometimes feeling that they have been first lured then deceived. A basic reason is time, as time translates the individual's investment in networks, and therefore the interest exerted by these on the actor. Even though the diaspora option is non-exclusive since it combines existing and new associations, time is a non-compressible variable which implies selection. Then, sometimes, the expatriate has to choose between the alternatives of time to be devoted to activities. At the opposite end of the return option, in which competition with alternative activities from other associations are cancelled or minimized by the expatriate's physical reintegration, the diaspora option always has to provide attractive conditions for action since mobilization is always partial. Moreover, in some reported instances, the expatriate's investment in a DKN conflicted with his/her professional involvement, when expectations of associations of his/her networks in the host country have been unmet by corresponding ones in the origin country.

1) Institution building : not an exclusive solution

The potential negative overlap of involvements clearly draws the line of conduct for DKN. They must aim at minimizing the conflict of interest and be equipped accordingly. If the executives in the diaspora have very little time --though are highly productive because of their networks-- then the DKN must provide time-producing (versus time-consuming) intermediaries; in other words, it must focus on productivity. Technology is a key issue here but policy is no less important. The combination of both is necessary. Rapid access to the actors needs information technology and actors which have already been informed of options, mobilized, enrolled and interested. This means a massive involvement of heterogeneous actors, especially in the country of origin, to multiply mediations and possible interactions with the diaspora.

In many home countries this effort has not been made. The creation of institutions has recently been proposed as a possible answer and counterpart of the diaspora in the origin country (Kuznetsov et al. 2006; Chaparro et al. 2004). However, it is only a part of the answer. It unrealistically assumes that the diaspora groups will provide their skills and contacts through a governmental agency interface connecting with local communities, as if both the former and the latter were homogeneous, stable entities. A glance at contemporary African history and the State-intellectual diaspora relationship after decolonization reveals its complexity (Mkandawire 2004). In the case of the Colombian Caldas network, disengagement and criticisms from the expatriate members coincided with its institutionalization within Colciencias during the mid and late 1990s. Instead of strengthening the response to the diaspora supply, it weakened its diffusion and ramification in the social fabric in Colombia.

2) The solution is in mediation

A macroactor like the home country State must certainly show the way and boost initiatives but should delegate and pass on decisions, measures and negotiations to other players. The Chinese and Indian cases are clear on this point. Erroneously perceived as paramount to centralized intervention, these countries exhibit a tremendous involvement of heterogeneous actors, a multiple mediation process, in the development of their S&T diasporas (Xiang Biao 2006; Leclerc and Meyer 2007). The central state has had a clearly favourable policy indeed (for example, *wei guo fuwu* in China and high level committee on diasporas in India), but the initiatives of provincial states, distinct administrative bodies, single institutions, para-statal

organizations, NGOs, academia, firms, individuals, and so on, have had a decisive impact. The fact that many different DKN and programmes developed at the same time for the same country of origin did not have a negative effect. On the contrary, it helped multiply the opportunities of cross fertilization. Therefore, instead of -or beyond- institution building, the State's role is rather to suggest, facilitate and coordinate multiple actors' initiatives. This is where governance actually takes place and it would not have become possible without distributed knowledge schemes opened by ICTs.

3) The state facilitates

The role of the State in building and consolidating interaction infrastructures is crucial not only by means of its own input but also by the example it sets for other actors, public or private. Recent surveys of DKNs unanimously converge on the importance of nation-states' involvement.¹⁴ Governmental agencies may systematically provide infrastructural elements (databases, portals, websites, information in general) easing the access of the expat's networks to local (origin countries) ones like in the case of Colombia today. It may also grant action-tied resources, be they material (fundings, equipments, technical support), organizational (institutional support, procedural guidance, administrative assessment) or symbolic (rewards, publicity, exposure). Above all, it may act as intermediary among multiple actors (for instance, the chamber of commerce, scientific councils, universities, multinational or national companies, and so on) both abroad and at home through its various services at different levels. Then the network logic takes on without the initial actor being contiguous to newcomers, in an ever-growing dynamic of increasing returns. To fuel self-sustaining action-oriented processes, strategic investments are crucial along with interactive technologies. No matter the degree of initial enthusiasm to cooperate with the country of origin, the diaspora will not durably do so without continuous facilitating network relationships.

4) Cooperation through the diaspora

It would seem natural that origin countries, as obvious potential beneficiaries, make these kinds of investments. However, it is also the role of host countries as well as intergovernmental organizations to grow and feed these chains of intermediation because they strengthen both the host and the home country poles of the migration system (co-development perspective) and reinforce a multilateral cooperative regime (global redistributive prosperity perspective). Technopolicy options have been identified that would make these investments possible in both the host and home countries. Diaspora "incubators" in OECD receiving countries have been conceived as connective platforms with both equipments (hard and soft) and strategic data (access to social, economic and other resources) to expand the DKN capacities and to professionalize them (Barré et al 2003). Local antennas in origin countries have been suggested as the interface between external actors and national programmes (Lema 2003). There too, is the idea of both infrastructure giving access to potential partners, organizational entities providing virtual spaces where representative actors could meet and decide upon projects of common interest in and outside the country, and programmes for which investments would be made to boost joint activities between home communities and expatriate members.

In order to conclude we may highlight some points of the diaspora option that should be taken into account in relation to social policy:

- The emergence of highly skilled expats associations, diasporic knowledge networks, is part of the associational revolution described by some authors (Piper 2006) with

¹⁴ Barré et al 2003; Kuznetsov et al. 2006; Brinkeroff 2006

proliferation of NGOs and their transnationalization. They interact with state institutions in complex governance schemes. As transnational actors, they cannot be part of purely national programmes in the same way that social policies –targeted or universal- essentially are (Mkandawire 2005). They, in fact, require a broad conceptual perspective in which nation-states (sending and receiving) should nurture these actual or potential partners to promote development.

- The concept of social policy should be adapted in order to incorporate transnational actors' intervention as mediators of development. Expatriate associations working in ways that support public policy should be targeted; they should receive the means for carrying out their action. Their efforts should be channelled by government and cooperation agents as it does not necessarily go to the neediest.
- Evidence about tremendous contributions of the Indian and Chinese diasporas to technological and economic development at home is not matched by reports on their distributional effects. On the contrary, it seems that social remittances of skilled expats and networks --in terms of significant knowledge input given to the country-- benefit mostly high tech areas and add little to a general improvement of human conditions in these countries. It is the role of public policies to go beyond entrepreneurial connections and capitalize on diasporas' quality input for health and education as well as general productivity upgrading, as the case of India clearly indicates (Khadria 1999, 2003).
- The diaspora option is opened not only as a North – South opportunity. Cases of links among countries of the South through diasporas are reported and seem operational. For instance, Colombian researchers in Brazil transmit biotechnology environmental projects back home; Nigerian engineers in South Africa manage the network through which they prepare reintegration of technologists in Nigeria. Assymetry is not *per se* what makes the diaspora option functional; differences of resources and contexts which may be of interest at home and are processed by both the expats and the country for appropriation, are in fact what matter. Adequation with local needs is built in action. It is a social construct, not simply given by positions of actors at the beginning of the relationship between diaspora and country of origin.
- Finally, today, the evidence on numerous networks gives some clues about the way to manage the complex relationship between diaspora and home country actors. The success of their endeavours depends upon implementing mediation processes and procedures (Meyer 2007). This is a field in which social policies, by both home and host countries as well as cooperation agencies, could invest creatively.

Conclusion

Migration flows affecting developing countries are more complex than ever before. In particular, South-South flows appear very important and deserve more attention. The skills component has increased although it probably remains slightly less intensive than in the traditional South-North mobility framework. The loss of human resources useful for development - particularly with regards to education and health- is especially high for countries with limited resources. Least Developed Countries loose qualified personnel to many other regions such as the OECD, the emerging or the middle income economies. Migration thus translates or reflects but also aggravates global social discrepancies. Brain gain strategies that have been put in place to mitigate or reverse the brain drain include return and diaspora options. Return is most effective when prior adverse local conditions have changed significantly and provide opportunities, which is not the case in the countries with acute shortages. Diasporas may offer solutions to impulse, compensate or replace development dynamics requiring locally unavailable human resources. However, they need innovative social/public policies. State intervention is no longer exercised within borders and towards - but without- civil society. It is conceived with transnational actors' participation and involvement, along with state entities, from both origin and host countries as well as cooperation agencies.

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