

INTERNATIONAL MIGRATION PAPERS

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**Skilled Labour Migration from
Developing Countries:
Study on South and Southern Africa**

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Foreword

This report forms part of a series of studies conducted by the International Labour Office under the DFID-sponsored project on “*Skilled labour migration (the ‘brain drain’) from developing countries: Analysis of impact and policy issues.*”

International migration of skilled persons has assumed increased importance in recent years reflecting the impact of globalisation, revival of growth in the world economy and the explosive growth in the information and communications technology (ICT). A number of developed countries have liberalized their policies for the admission of highly skilled professionals.

The problem lies in that this demand is largely met by developing countries, triggering an exodus of their skilled personnel. While some amount of mobility is obviously necessary if developing countries are to integrate into the global economy, a large outflow of skilled persons poses the threat of a ‘brain drain’, which can adversely impact growth and development. The recent UK government (DFID) White Paper on International Development, “*Eliminating World Poverty: Making Globalisation Work for the Poor*” has rightly pointed out the need on the part of developed countries to be more sensitive to the impact on developing countries of the brain drain. It was in this context that the Department for International Development, United Kingdom, approached the ILO for carrying out research relevant to the above issues.

This study undertaken by Dr. Haroon Borhat, Professor Jean-Baptiste Meyer and Ms Cecil Mlatsheni provides new estimates of the outflow of skilled persons that show emigration to be much higher than officially recorded. The authors point out that the ‘brain drain’ issue in contemporary South Africa is a very big concern, a national, often emotional, issue crystallising many anxieties about the future of the country. Based on a detailed analysis of the phenomenon, the study makes two major recommendations. First there should be increased cooperation with receiving countries for data improvement through exchange of information. Second, it recommends the mobilisation of the South African diaspora for promoting development at home. The promising South African Network of Skills Abroad requires support in this respect.

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Mr. Piyasiri Wickramasekara, Senior Migration Specialist, International Migration Programme, acted as the ILO Project Coordinator and technically backstopped all the studies. ILO is most grateful to the authors of this report for their valuable contribution.

Geneva, July 2002

Manolo I. Abella
Chief
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Executive Summary

By all standards, the emigration of highly skilled people from Southern Africa, and especially from the Republic of South Africa, is high. Measuring it is not an easy exercise though it is a necessary one if one wants to stop endless speculation and interpretation over the phenomenon. For this reason, the study has selected data emanating from the major receiving countries of South African human capital, in order to remedy the deficiencies of the notoriously unreliable national data about emigration.

This data shows that emigration is, indeed, much higher than what is recorded through official SA data. However, it also reveals that the increase during the last decade is much less dramatic than the latter used to suggest. This is a positive element that stems from the use of a more concrete approach to migration policy in the country rather than emotional postulation. Such a policy is necessary, as it appears that the country is losing skilled people in an environment where, according to all labour market projections, there will be significant increases in labour demand for skilled workers.

The brain drain in contemporary South Africa is a very big concern, certainly more than for its neighbours with the possible exception of Zimbabwe. It is a national, often emotional, issue crystallising many anxieties about the future of the country. It does have a racial content although the phenomenon is not limited to a particular group. White skilled professionals appear to be those with a higher propensity to leave though black individuals may also be attracted to live overseas, albeit in smaller proportions. With skills being concentrated in the white population, for obvious historical reasons, this depletion of white human resources is of particular concern.

The UK is by far the major receiving country and is likely to remain in this position for still a significant time, according to current trends. Surprisingly, the neighbouring countries from the SADC region have had a positive balance, hence yielding a net gain of talents, with the Republic of South Africa. However, this is likely to change now, both as a result of the Zimbabwean crisis and the migration policy changes in South Africa.

Finally, two particular recommendations are made, with an emphasis on short term feasibility: to ensure that South African agencies obtain the receiving countries data on a regular annual basis, in order to monitor the migration evolution with adequate knowledge and secondly to support the promising diaspora option taken by South Africa (as well as other countries) in mobilising its highly skilled expatriates all over the world, for the development of their country of origin.

1. Introduction: The ‘Brain drain’ Issue in South Africa

Historical records show that the emigration of the highly skilled has long been a concern for many countries, and one leading to divergent interpretations, disputes and expressions of fears. This is particularly true in South Africa today. The country’s recent dramatic changes with the end of *apartheid* and the advent of a multiracial society have been matched by unprecedented attention being directed towards the migration issue. The massive increase in media coverage of this topic over the last decade is tangible proof of this. In particular, the question of migration statistics is frequently raised. South Africa is thus a case worth studying both for itself and as a possible reference to other countries facing the issue in comparable terms, albeit under different circumstances. A detailed examination of the emigration figures in the Southern African region show both the extent of the problem based on reliable data and realistic estimates, as well as unexpected features of this phenomenon, due to the consideration given to the often ignored aspects of this issue.

Mapping the problem

There is a consensus, today, that South Africa is experiencing a deep and growing skills shortage. This is partly due to the emigration of skilled South Africans with hardly any skilled immigration to balance the scale. This section will first explore the reasons why those that emigrate choose to do so. Then, it will turn to the conditions prevailing today in the highly skilled labour market, in the region and within the context of globalisation.

1.1. Push and pull factors in the migration of skilled workers

Push factors

In mid – 1998, the Southern African Migration Project (SAMP) undertook a study to examine and assess the range of factors that contribute to skilled South Africans’ desire to leave the country. The random probability sample consisted of 725 interviews, stratified by province, representative of South Africa’s skilled population. A skilled South African, for the purposes of the SAMP survey, was defined to be someone who is at least twenty years of age, who has completed high school and possesses a Technikon diploma or University degree from a recognised institution and is currently economically active. The remainder of this section draws on the findings of the SAMP survey.

Over two-thirds of the sample said that they had given the idea of emigration some thought while 38% said they had given it a “great deal of thought”. Among the reasons cited for wishing to leave the country was the declining quality of life. Indeed, it is a common belief that the South African brain drain is heavily driven by perceptions of deteriorating quality of life since the demise of apartheid. There is general dissatisfaction with the cost of living, the level of taxation, safety and security, and the standard of public and commercial services in South Africa.

However, potential emigrants are less dissatisfied with personal economic conditions, schools, and available health care. They also do not exhibit high levels of dissatisfaction with their situation as skilled people, relative to others in their race or

language group. However, 65% of the skilled whites interviewed said that their standard of living had deteriorated since 1994 whereas the same proportion of blacks felt that theirs had improved. Views about the future remain pessimistic, though irrespective of race. Future cost of living, levels of taxation, safety, and the standard of public services are often cited as major areas of concern.

The respondents were also asked about their views on the political situation seeing that their higher mobility could lower their threshold of sensitivity to unsatisfactory or disagreeable government policies. It was found that skilled whites are dissatisfied with the majority of the government's performance. They distrust the government and feel that it does not represent them. Skilled blacks on the other hand express much more positive sentiments about government. Interestingly though, over 50% of skilled South Africans of both race groups find the government unfair in its treatment of themselves and their race, class and language group.

Furthermore, the government's affirmative action policy was identified as another factor influencing the emigration of skilled white South Africans. The results of the survey indicate that skilled whites are strongly opposed to this policy and the arguments advanced in support of it. Only 20 % of blacks expressed similar views.

Pull factors

There can be no doubt that the driving force behind the increased attraction of skilled workers in South Africa, and indeed in many other developing countries, to developed country labour markets has been the technological revolution. The technological revolution has resulted in huge growth in specific industries, notably the IT sector, in the developed world. More generally, there has been a rapid rise in the importance of the services industry worldwide. For example, in Europe the share of the services industry in GDP increased from 58.1% in 1980 to 67.5% in 1994, while the increase in the Americas was from 63.6% to 70% over the same period.

The importance of this trend has been rapidly growing demand for highly skilled employees to work in these industries. While the IT sector stands out within the services industry, other sub-sectors such as communication and financial & business services have also reported large increases in labour demand. As a consequence of this unforeseen demand spike, many developed countries are reporting significant shortages for skilled workers in these fast-growing industries. This fact serves as one of the key pull factors in the study of emigration in the developing world, as these advanced economies have turned to the developing world to meet their labour demand needs. As a result, a country like South Africa, in producing a fair share of highly skilled IT and other professionals for the services industry, is quickly finding that these individuals are in demand globally. This shortage of skilled professionals in developed economies is thus one of the key pressure points on the level and extent of the brain drain from South Africa.

Related to the above is the subtle, yet equally important issue of access to information. The introduction of new communications technologies has provided far easier access to labour market information. Potential workers, from all around the world, now find that the entry barriers to these jobs is significantly lowered simply by being able to access the same information as other candidates in the developed world

– principally through the internet. Labour market information, in becoming a global service through the world wide web, has thus added to the attraction of skilled workers in South Africa and elsewhere in the developing world, to these jobs.

An additional pull factor relates to the demographic dynamics in numerous developed economies. Many of these countries have a population profile skewed heavily towards individuals in higher age cohorts. Put simply, the average age of economically active individuals has been rising steadily in these countries. One of the results of this has been a growing shortage of employees in certain occupations. Canada for example, has a known shortage of teachers and nurses and the United Kingdom for medical professionals. As a result, these economies are beginning to actively recruit individuals from developing countries. Specifically, recruitment takes place within countries where it is known that the quality of skilled professional produced is high. South Africa is one such target country. Hence, the growing shortage of skilled personnel due to an ageing population combined with an increasingly aggressive recruitment drive, remains as one of the key pull factors in understanding the brain drain in South Africa.

Two additional pull factors need to be noted. Firstly, potential emigrants from South Africa are aware that in many of the countries that they are likely to emigrate to, there already exists a fairly large ex-South African community. Economies such as Australia, Canada and of course the United Kingdom, already boast fairly substantial South African communities. As such then, this adds to the attraction of emigrating – given the existence of a fairly large community of South Africans that may, amongst other things, reduce the adjustment problems in moving to a new country. Finally, one of the key pull factors is of course the converse of the one of the important push factors, outlined above. The low levels of crime, and high levels of adherence to the rule of law, all ensure that most of these developed economies are safe and socially stable environments. This remains one of the key reasons for South Africans being attracted to these economies, in that they will be moving to a new society where the present and indeed the future is more secure, stable and certain.

The push and pull factors described in this section have been distinguished and listed separately for analytical purposes. They are obviously deeply intertwined and combined in the actual decisions taken by individual professionals. Also, many intermediaries (head hunting companies, international recruitment firms and agents) do activate these factors and thus shape the migration process.

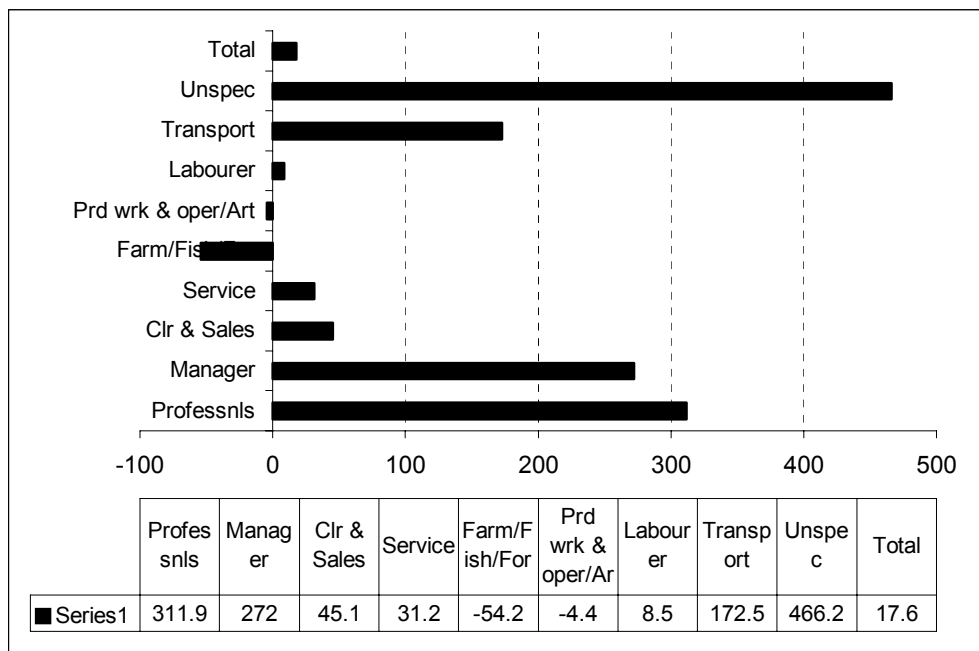
1.2. Size of the skilled labour force in the country

The backdrop within which the brain drain from South Africa needs to be understood, is the extent to which those individuals leaving may in fact be deleteriously affecting the current and future labour demand needs of the South African economy. Put differently, we know that the majority of those leaving South Africa are skilled workers: hence an important issue is how these exit levels may be affecting the economy's internal needs for skilled workers. In trying to answer this question, this section provides a brief overview of labour demand trends by skill in South Africa, followed by a snapshot of the quantum of employed individuals by occupation.

An analysis of economic trends in South Africa, over the last 25 years reveal two important and indeed striking changes. Firstly, a structural shift has occurred within the productive base of the economy. More specifically, the two primary sectors, agriculture and mining have witnessed a secular decline in their share of GDP. Hence the share of agriculture in GDP fell by about 4% since 1970, while mining's contribution declined by 3%. The decline of the primary sectors though, has been matched by a significant growth in the service sectors, most predominantly financial and business services and wholesale and retail trade. The service sectors' growing contribution to GDP is best reflected in financial and business services, where its share of GDP rose by over 6% between 1970 and 1995. A second major shift that has taken place in the domestic economy has been the rapid rise across all sectors, of capital-labour ratios. Simply put, sectors have shown an increasing reliance for machinery over labour in this 25 period, in the search for productivity gains. In the primary sectors for example, capital-labour ratios increased by over 150% since 1970. In service sectors the rise in capital intensity is manifested in higher rates of computerisation, brought on by the information technology revolution - a process that we have already alluded to above.

Given the shift away from the primary toward the service sectors on the one hand, and the rising capital intensity in the economy, on the other, it is important to determine what effects these factors had on employment levels and trends. In pure quantity terms, there were huge employment losses in agriculture and mining, amounting to 1.5 million jobs over 25 years. In contrast, the service sectors gained over 2 million jobs. This employment outcome has been a result of both the decline in the primary sectors and the rising capital intensity in the economy. Employment needs in the economy have thus irrevocably shifted away from the primary sectors and toward the services industry. In this manner then, the new labour demand needs in South Africa, are no different from those experienced by the major industrialized economies.

It is necessary however, to unpack these aggregate employment changes that have occurred between 1970 and 1995. More specifically, we need to determine if the changing employment patterns observed were skills-neutral. Put differently – did the employment gains and losses over the last 25 years mean that certain skill groups benefited while others lost out? The figure below attempts to answer this, by providing detail on employment growth rates by occupation between 1970 and 1995.

Figure 1. Percentage growth in employment by occupation, 1970-95

Data for the period indicates quite clearly that skilled workers made substantial gains since 1970, while the proportion of workers in unskilled occupations steadily eroded. Hence unskilled workers' share of employment fell by between 4 and 54% since 1970, with the number of labourers in employment increasing by a marginal 8.5%. In contrast the share of skilled occupations has grown extremely rapidly. Hence, as the figure shows, the number of professionals and managerial staff employed grew by 311.9% and 272% respectively. Clearly the structural shift in the economy, combined with the rising capital-labour ratios have meant a preference for skilled over unskilled labour. This changing employment preference is a result of the decline in the primary sectors, who are intensive in the use of unskilled labour combined with the rise in services, where the demand is primarily for those in skilled occupations (and more specifically, IT professionals). In addition, an environment of higher capital intensity invariably means that more skilled workers will be preferred to less skilled workers to operate the new machinery.

It is expected that the twin trends of rising capital intensity and the growth in services, coupled with the decline in agriculture and mining, will continue in the future. This means of course that these employment patterns will also remain the same, if not intensify. In the process of long-run economic growth, employment will benefit skilled and semi-skilled workers to the detriment of unskilled individuals. The winners in the next decade, all things held constant, will be those at the top-end of the job ladder and the losers invariably those at the bottom-end. This then is the likely labour demand trajectory for the South African labour market over the medium- to long-term.

The implication of the above is that in an economy with high and rising demand for skilled workers, one can ill-afford a problem of significant skilled worker emigration. Indeed, as a direct result of this significant hike in the demand for skilled workers, South Africa has a severe skills shortage. This is reflected in the high vacancy rates that are found at the top-end of the labour market. Ultimately then, we can understand

the South African labour market as one characterised by high and rising demand for highly skilled workers, which has due to lack of adequate supply, created a severe skills shortage. The brain drain serves only to exacerbate this shortage. This therefore is the labour market context within which the brain drain needs to be understood: namely that it places further pressure on an already constrained availability of skilled workers that is so important a component to long-term economic growth prospects for South Africa.

While less useful as an indicator of shortages in the labour market, or representative of the pressure that the brain drain has put on the domestic economy, the following table does serve though as an extremely useful snapshot of the South African labour market. It is an attempt at providing a dissection of employment by occupation in 1999. In addition, basic statistics on the size of unemployment and the labour force as a whole are provided.

Table 1. Employment by occupation, 1999

Category	Number	% of total
Legislators, senior officials, and managers	684,000	6.6
Professionals	554,000	5.3
Technicians and associate professionals	1,042,000	10.0
Clerks	1,071,000	10.3
Service workers, shop and market sales workers	1,225,000	11.8
Skilled agricultural and fishery workers	469,000	4.5
Craft and related trade workers	1,355,000	13.1
Plant and machine operators and assemblers	1,092,000	10.5
Elementary occupations	1,901,000	18.3
Domestic workers	799,000	7.7
Occupation not adequately defined	138,000	1.3
Occupation unspecified	39,000	0.4
Employed	10,369,000	100
Unemployed (Expanded definition)	5,882,000	36.19
Total Labour Force	16,251,000	

Source: Statistics South Africa, October Household Survey 1999

The table shows that total employment in the labour market stood at about 10.4 million in 1999. In addition, note that the skilled labour force, represented by the first three occupations in the table, constitute roughly 22% of total employment. The largest proportion, a substantial 18.3% of those employed are in elementary occupations, while craft and trade workers make up 13.1% of the total number of employees. Service and sales workers add up to roughly 11.8% of the total. The unemployment rate is particularly revealing. Using the expanded definition of unemployment, we find that 36.19% of the economically active population are jobless. Given that we have already suggested that the economy has significant shortages amongst high skilled workers, what this suggests is a serious problem of mismatch between labour demand and labour supply. In other words, the majority of the unemployed in fact do not possess the requisite supply characteristics to take up employment in these vacant positions. It is the co-existence of two contrasting labour markets – a high-skills supply shortage one and a low-skills excess supply market – that typifies the crisis the South African labour market finds itself in.

Ultimately then, the South African labour market reveals a high and growing demand for skilled workers, combined with poor or negative growth for unskilled employees. The high unemployment levels outlined above are a reflection of the consequences of this labour demand trajectory. Of relevance here though, is the fact that this particular employment specification of firms, has yielded (as a result of inadequate labour supply) significant shortages at the top-end of the occupational ladder. The trend then of the economy's skilled individuals leaving at an increasing rate, ensures that one of the economy's key constraints, the high-skills shortage, is placed under further pressure. Having provided an overview of the South African labour market, in particular relation to the growing need for skilled workers, we now turn to a more detailed examination of the extent and level of emigration from South Africa.

1.3. Measuring the brain drain

The accuracy of the official statistics on the extent of emigration from South Africa, particularly skilled people, has been increasingly questioned by journalists and academics. Doubts arose in the mid-90s as empirical findings indicated that the departures were far higher than the data published by Central Statistical Services indicated. These studies were based on data from embassies or removal companies, which showed that more people were leaving than the statistics indicated. This evidence was later confirmed by statistical comparison between South African emigration data and South African registered immigration to countries such as Australia, New Zealand and the UK¹. This Immigration data was approximately 3 times higher than South Africa's emigration data.²

That the South African data is underestimating the extent of emigration is now widely accepted. It has been acknowledged by the Department of Home Affairs as well as by the Central Statistical Services (now Statistics South Africa). Both are aware that their records can only take into account the registered emigrants, those who declare themselves as such when crossing the border at the exit³. However, there has not yet been a systematic assessment with more reliable data. This absence of reliable data has left the debate open to speculative arguments, a situation which is unfortunately not good for sound policy formulation in the area of emigration and immigration.

1.3.1. Migration measurement: a universal problem

Even though South Africa is particularly sensitive to uncertainties regarding the extent of migration, it is obviously not the only country facing difficulties in measuring it accurately. Migration specialists nowadays consider population registers or yearly statistics of emigration departures to be the most preferred data source. These flow data report on the migration process in its continuity and are most practical for the generation of annual estimates.

However, such data are often unavailable, incomplete or inexact because of a loose control over the collection and registering of information⁴. The required figures are rarely available in developing countries. Host countries' statistics are therefore often

¹ Kaplan 1997.

² Fourie and Soubert 1998.

³ 'Exodus as Rainbow Nation iridescence fades' Financial Mail Oct 25 1996; 'Brain drain highest in decades' Cape Times June 13 1997.

⁴ Domenach and Picouet, 1995.

taken as the primary source of information. In order to give the full picture, however, these statistics should be available for most of the host countries of migrants coming from a single country of origin.⁵

The EUROSTAT (Statistical Office of the European Union) and the O.E.C.D. agree that "...a register records entries more efficiently than departures"⁶ because "...individuals often fail to record their departures and therefore data on outflows can be less reliable... Departures tend to be less well recorded than arrivals, often because registration results in certain rights and benefits of the individual, whereas there is less incentive to inform authorities of departure."⁷ If host countries' data usually appear to be more abundant and more reliable than the data of the country of origin, it is wisely advised that the latter has access to, check and eventually compare the foreign data with its own information⁸.

The need for better data has been emphasised by international organisations and a number of scholars since the earliest studies on the brain drain. Significant efforts have been put into this, however, to little avail⁹. The data from the immigration (industrialised) countries have undoubtedly been perceived as being more reliable than those produced by the countries of emigration developing countries. They are often, however, not easily comparable from one country to another.

The question of statistics homogenisation has been raised and addressed quite directly by the United Nations Conference for Trade and Development¹⁰. Attempts to resolve the technical aspects of such a standardisation using expert group discussions have however failed. There is currently no uniform data available except to a limited extent for Western Europe-related migrations covered by EUROSTAT or for countries using similar ways of collecting and registering data due to similar statistical traditions.

A recent study attempted to appraise the extent of the brain drain worldwide, using a different approach¹¹. This study was based on stock rather than flow data. Using the U.S. 1990 census results, it recorded the educational attainment of U.S. citizens born in 61 developing countries amongst which South Africa was included. Although the authors explicitly recognise that "some or all of the education of some migrants may have taken place in the United States"¹² the importance of this probability on the relevance of their brain drain estimate was minimised by them. This may be viewed as an oversight as the influence of this probability cannot be minimised since it affects the meaning of the results deeply. Another recent study indeed showed that a majority of the foreign scientists and engineers in the U.S. and in France acquired the high qualifications that entitle them to stay and to claim for a position, in these host countries, rather than at home¹³. Pursuing studies abroad constitutes a major channel of migration. This is different and should definitely, for analytical purposes, be distinguished from the brain drain as the emigration of already skilled productive

⁵ Blayo, 1989.

⁶ Chrissanthaki, 1996, p 99.

⁷ OECD 1998, Statistical annex, pp 214-5.

⁸ Bilsborrow *et al.*, 1997, p 12.

⁹ OECD, 1970; Briborg and Goran, 1975; UNCTAD, 1982.

¹⁰ UNCTAD 1982, 1984a,b, c, 1985.

¹¹ Carrington and Detragiache, 1998.

¹² Carrington and Detragiache, 1998, p 7-8.

¹³ Meyer and Brown, 1999.

human resources¹⁴. Stock data, whether global or national, can hardly reflect the actual brain drain. They simply reveal the extent of the diasporas, which should not be confused with a basic result of earlier highly skilled outflows.

The analysis that follows is grounded in orientations proposed in these previously mentioned works. It relies principally on flow data, which are available for South Africa. It compares foreign figures from a number of representative countries in different parts of the world, with South African statistics. The comparability of data is made possible through the mobilisation of figures produced by statistically similar systems. In this sense, South Africa offers exceptional conditions. South Africa therefore provides for a rare opportunity to comprehensively analyse emigration data in a sample developing country, on the basis of fairly substantial information.

1.3.2. Data and methods used in the case study

Official emigration figures were taken from various documents of the national statistical services, namely Statistics South Africa (SSA). These figures were compared to immigration figures from South Africa to other countries, as recorded by their own agencies¹⁵.

Data was initially collected from 7 countries: United Kingdom (UK), United States of America (US), Australia (AU), Canada (CA), New Zealand (NZ), Israel and France. The last two countries were dropped for technical reasons including that the statistical series were less precise, shorter, discontinuous or had amalgamated several years in their series. Despite this, what the figures from both countries indicate is consistent with the other countries' findings, namely that the South African statistics are underestimating the extent of the emigration. The 5 countries studied absorb 75% of the South African emigrants, according to SSA¹⁶. It is thus relevant to focus on these as, without any doubt, they represent the largest part of the migrating population from this country.

Categories were reasonably comparable across countries although small differences were noticed. Referring all to immigrants, some countries qualified the origin of the migrant through the country of birth (for instance, the USA) whereas others referred to the last country of residence before immigration (Canada, for instance). This question of a non-universal definition of the migrant is inherent in the study of migration and has been reported extensively in the literature. It is assumed here that this should not affect the bulk of the data. That is, most of the individuals recorded should both have been born in South Africa and have been officially resident in this country before departure.

With regard to occupational categories, the SSA occupational breakdown was taken as the point of reference. Thus, the "active population" includes various categories of which those defined as "highly skilled" are composed of the "professionals, semi-professionals and technical occupations" as well as of the "managerial, executive and administrative occupations". Hereafter, both categories are referred to as

¹⁴ Meyer and Charum, 1995.

¹⁵ Department of Immigration and Multicultural Affairs of Australia, Citizenship and Immigration Canada, Statistics New Zealand, Immigration, Research and Statistics Service of the United Kingdom, United States Department of Justice, Immigration and Naturalization Service; (see bibliography).

¹⁶ 79% before 1994 and 71% after, exactly.

“professionals” and “managers”, respectively. The former - which is the most important of both highly skilled categories in quantitative terms – includes the following occupations: “architects, engineers and technicians; natural science; medical, dental and related health; education and related, humanities and related, accountant and related, art, sport and entertainment”. The most detailed foreign data available were always easy to re-aggregate and recombine in a manner that would fit with the South African classification. Therefore, the comparisons made here are based on homogenous statistical objects, as a result of the uniformity of the statistical systems under consideration, all shaped by a common Anglo-Saxon tradition and administrative practice. The foreign data does appear to be more reliable than the South African figures, for at least 3 reasons:

Firstly, because the causes for which the emigrants would not declare themselves at the exit (tax evasion, guilt feeling, administrative independence) do not prevail where they enter.

Secondly, it is almost impossible to enter illegally in a country through airports (air is obviously the transportation used here).

Thirdly, when it turns to highly skilled formal sector positions, illegal work (and therefore stay) is absent or exceptional for technical reasons and social status.

A high degree of certainty thus exists that the South African skilled immigrants in these 5 countries are registered immigrants and accounted for in their statistics. It may, however, also occur that some professionals do enter one of these countries under a different status and settle afterwards. This is not an exceptional case in the USA, where transitory though rather long-term work permits are delivered to some visa holders. In that sense, the brain drain evaluation that is reported here cannot reflect all the dimensions of the outflows. It refers to the main, permanent, immigration, which is what the term brain drain is supposed to encompass.

Finally, the figures used to measure inflows, to be compared with the outflows and get the net migration balance for South Africa, come from the official (SSA) statistics only, as they are most likely to be highly representative of actual inflows. Considering the highly skilled population involved and its employment in formal, visible, positions, illegal immigration does not appear to be a realistic, big scale situation.

Complete data was not available for all the years, all the categories and all the countries at the same time. The UK detailed data per category was missing. The USA’s data was only available for one year. Australia’s data was almost complete though limited to broad occupational categories. Canada and New Zealand had a more detailed and complete set of data. To overcome these limitations, calculations were necessary with occasional extrapolations and interpolations, in order to get a more general picture. Two options were thus taken:

The first was to complete the missing data by estimates based on previous years and on countries’ ratios of the total. This allowed extrapolation of the USA professionals’ data from the only year available (1996) and the UK professionals’ data from the combined percentage of this category on the overall population of the 4 other countries. This method provides figures for periods of 11 years for the overall

population and of 9 years for the professional one¹⁷. It gives a continuous and consistent estimation of the South African emigration and brain drain throughout the decade. However, half of the calculations are therefore based on estimations rather than on hard figures, for the professionals' population¹⁸.

Table 2. Professional emigration according to SSA and selected countries' data (hard data in regular font, estimates in italics)

	1989	1990	1991	1992	1993	1994	1995	1996	1997
AU (SA data)	312	291	198	189	356	274	308	420	310
AU (new data)	558	479	295	213	353	610	765	696	1122
NZ (SA data)	25	24	12	49	93	349	209	297	286
NZ (new data)	60	59	63	104	551	656	462	628	631
CA (SA data)	94	85	63	69	136	224	173	170	118
CA (new data)	327	227	213	243	407	677	421	315	421
US (SA data)	56	68	89	81	153	216	235	254	258
US (new data)	399	418	389	528	461	450	538	618	538
UK (SA data)	275	331	296	349	661	450	368	422	444
UK (new data)	2574	1408	1760	1518	2068	1782	924	2508	2417

The second method aimed at limiting the estimates to the minimum, relied mainly on the available data. A rate of discrepancy between South African and external data was inferred through a direct comparison between both. This rate was checked to be the same at every level of detail of the population under consideration (overall, active, highly skilled, professional, managerial occupations). It was then applied per country and period (pre- and post- 1994) according to their statistical weight¹⁹. Only one extrapolation was thus actually made, after validation through a systematic comparison between the different populations, namely that the discrepancy between South African and selected countries data was the same at both the overall and professional levels. Using the discontinuity of the year 1993 when data are missing, it allows for a precise comparison of the two 4 years periods prior to and after the 1994 political change, with a reliable measurement of the discrepancy between the data of

¹⁷ Table 2.

¹⁸ see figures in italics in table 2.

¹⁹ Table 3.

different origin. However, it cannot cover the same time span as the one in the first option.

Table 3. Percentage of emigrants per country of destination

Countries	1990-92	1994-96	1990-96
UK (SA data)	53	35	41
UK (new data)	59	44	50
US (SA data)	8.5	12.5	11.5
US (new data)	17.5	14	15.5
AU (SA data)	27.5	22.5	24
AU (new data)	12	17	15
CA (SA data)	8.5	12	10.5
CA (new data)	9	11.5	10.5
NZ (SA data)	2.5	18	12.5
NZ (new data)	2.5	13.5	9

Each option has its advantages and limits. While the first one gives a more continuous data set, it is less accurate than the second one since it is based on more estimates. The latter is more reliable for comparisons of short time sequences but does not allow for a complete estimation on the last decade. The two methods generate slightly different results since they proceeded through distinct measurements. However, the results of both options 1 and 2 are much closer to each other than to the official SSA figures. The conclusions they jointly point to are consequently also quite far apart from the latter²⁰.

1.3.3. Main findings on South Africa

The new data deliver highly significant results both with regard to the extent of the South African brain drain as well as to the official statistics and the misconceptions that are carried along with these statistics. A more realistic picture can be shown, based on the reliable foreign sources of information. The figures presented can also be placed within the historical and occupational context of South Africa.

The emigration figures may be combined with the immigration ones, in order to look at the net balances on the last decade. Calculations are made here with the complete figures, i.e. estimations according to option 1 above.

Table 4. Emigration-immigration comparison

	Overall 1987-97	Professional 1989-97
Immigration (SA data)	95983	11464
Emigration (SA data)	82811	12949
Emigration (new data)	233609	41496

It appears clearly that the emigration figures are much higher than official ones, for both overall and professional populations, reflecting approximately 3 times more than the initial figures. The net balance is negative for the whole period for both populations.

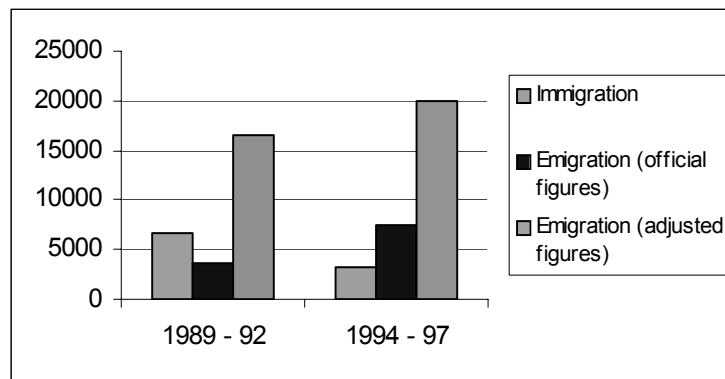
²⁰ For more details on these methods, see Meyer, Brown, Kaplan 2000.

When breaking this phenomenon down in two comparable 4 years periods²¹, the results are the following:

Table 5. Comparison of professional migration pre/post 1994

Migration of professionals	1989 - 92	1994 - 97
Immigration (SA data)	6714	3295
Emigration (SA data)	3721	7534
Emigration (new data)	16447	19890

Figure 2. Comparison of migration figures



These figures show a different picture of the brain drain than the one traditionally emphasised. The first point to be made is that there is indeed a huge emigration of skilled people compared with the immigration of the same: the figure is almost 4 times larger over the decade and even 6 times on the last few years. The net loss is therefore more important than shown by the official numbers. The worsening of the situation, however, is due less to an increase on the emigration side than to a decrease on the immigration one. Statistically, the deficit of skills is strongly related to a decrease in immigration. The actual brain drain – that is the net loss of skilled human resources – is not directly and essentially tied to the social and political change of the mid-90s; it started significantly earlier than the onset of these changes. This change may have amplified the phenomenon but it is not the origin of it. The emigration of professionals increased by only 21% from the first to the second period instead of the 102% shown by the official figures²². The official increase may be partially explained by a better coverage of the phenomenon by SSA data for the latter period compared to the former one: from 22.6% before 1994 to 37.9 after this year²³.

The figures given by the 5 countries of SA immigration also illustrate emigration trends with regard to geographic destination. There is a relative diversification of emigration flows. The UK remains dominant but its share decreases albeit to a lesser

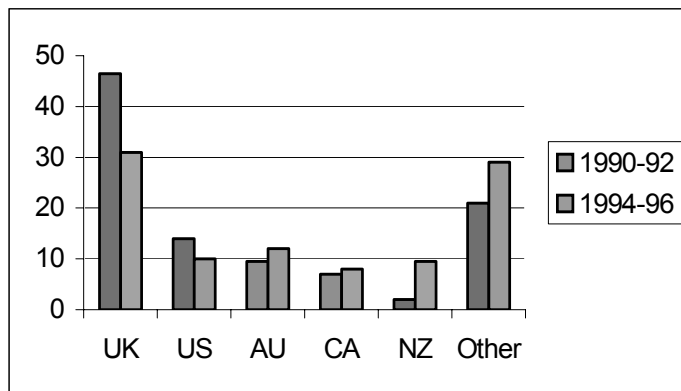
²¹ Option 2 calculations.

²² This result comes through the second option-method; the first method (based on more estimates) gives an increase of 51% for the same period, which is also much smaller than the official one and much closer to the results of the second method.

²³ Both options 1 and 2 give comparable though different rates of coverage per period (25% from 1989 to 1992 and 34% from 1994 to 1997, obtained through the second method) pointing to a much better coverage after 1994 than during the period that just preceded.

extent than was indicated by SAA. The United States' also drops significantly contrary to the official data. Meanwhile, Australia, Canada and New Zealand increase to almost a third of the total (including other countries) altogether. Oceania, and particularly New Zealand, becomes the attractive region at the expense of the traditional receiving countries. Australia, whose share was overestimated in official statistics compared to the other countries due to its higher rate of coverage, increased its percentage over the period, contrary to what has been indicated by these. The comparison between SSA and the other countries statistics tends to indicate that there are indeed changing patterns but it is an evolution with continuities rather than sharp modifications between pre- and post- 1994 periods.

Figure 3. Evolution of the countries share in total emigration (%)



During the period covered, the occupational composition of the emigrant population does not alter much. Half of the emigrant population is professionally active, meaning that on average every individual professional that leaves is accompanied by one dependent.

The active population is divided into non-highly skilled (about 30%), managerial occupations (about 20%) and professionals (about 50%). The immigration into these countries is clearly selective but the qualifications of the overall emigrant population does not increase significantly over the period. Those emigrating today have the same level of skills as those who moved at the beginning of the period. These countries having point systems for selection, with age, family and qualifications/skills combined, the non-highly skilled are likely to be young in order to fit with the requirements.

The detailed categories within the professional occupations are available only for 2 countries, namely Canada and New Zealand. The numbers involved at these levels are too small to provide a reliable statistical basis for extrapolations from the official data. However, they are quite suggestive and may thus serve as a reference point on these detailed categories. Within the professionals, the natural scientists/engineers and the health workers are the major groups. However, the proportion may vary significantly from one country to the other. Indeed, each individual host country seems to have a specific profile of skilled immigration. New Zealand data gives an even more detailed picture within the main sub-categories. It shows that a large part of the dramatic increase of the emigration to New Zealand during the 1990s is due only to the 2 categories of health professionals and engineers.

For the past decade, SA has lost about 4,600 professionals every year, which represents 0.3% of its national stock²⁴. However, this modest percentage may be much higher for particular occupational groups resulting in particularly deleterious outcomes in certain sectors. In terms of labour market flows, the brain drain levy on the professionals' turn over nationally is around 13%, if it is considered that approximately 36,000 new professionals are employed every year. This percentage is close to the ones given by the corporate sector in business surveys²⁵. Although it is a significant percentage, and one that is a concern for the development of the country, it is, however, not one that put its future in jeopardy in the short term. There is still time to take appropriate action towards changing this trend.

Finally, there is debate on the racial distribution of the emigration cohorts, which needs to be addressed. Some argue that emigrants are mainly white and others that all types of groups are represented. In fact, the figures cannot give a conclusive answer to this question but supporting evidence does provide clues. The first point is that according to all indications, the majority of the highly skilled South African diaspora is white²⁶ meaning that most of those in this category who emigrated in the past were of this racial group. This has been checked on a database of over 2,000 highly skilled expatriates, showing that less than 5% of them had names of African origin. The second point has to do with South African history. The apartheid system clearly excluded non-white groups from higher levels of education and access to qualified jobs through the two pillars of the Bantu Education Act and the Labour Bar. Even though this has changed today, the expansion of skills base in non-white communities is taking some time. For this reason, it is realistic to consider that most of those who have been able to acquire skills and sell them abroad are not members of the historically disadvantaged groups. The third point is that when trying to evaluate the propensity of young professionals to emigrate per racial groups, non-white individuals show a desire to do so, even if it is in a smaller proportion than white professionals²⁷. However, this refers to intentions and not to real, effective moves, which may be very different.

Concerning the immigration side, interestingly enough, the entries of highly skilled citizens from neighbouring countries have significantly decreased since 1994. This is against all expectations that the transformation of South Africa would spur a regional brain drain in its favour. Conversely, this country globally experiences a net loss towards the SADC partners, which has a lot to do with the restrictive policy of the Department of Home Affairs with regards to recruiting foreign professionals whatever their level of qualifications. This policy, however, is now changing and the situation should evolve again in the next few years.

1.3.4. Emigration trends in Southern Africa

The preceding section has raised the point that the net loss of skilled people in South Africa is due to a significant decline in immigration than an outstanding growth of emigration. In fact, this can be seen at the regional level of the Southern African Development Community. Far from being a country draining on the skilled resources of its neighbours, South Africa was recently sending more people to these countries

²⁴ 1,428,737 according to 1996 census data.

²⁵ Kaplan, Meyer, Brown, 1999.

²⁶ Kaplan 1997.

²⁷ IDASA survey of 1998.

(particularly Zimbabwe and Namibia) than it receives. The democratisation of the country has not led to a rush of skilled African people but rather the opposite. Interestingly enough, the share of the SADC region in total African immigration to SA has diminished while the rest of Africa has remained rather stable as the graph below shows.

Figure 4. African immigration to South Africa (Source: SSA data)

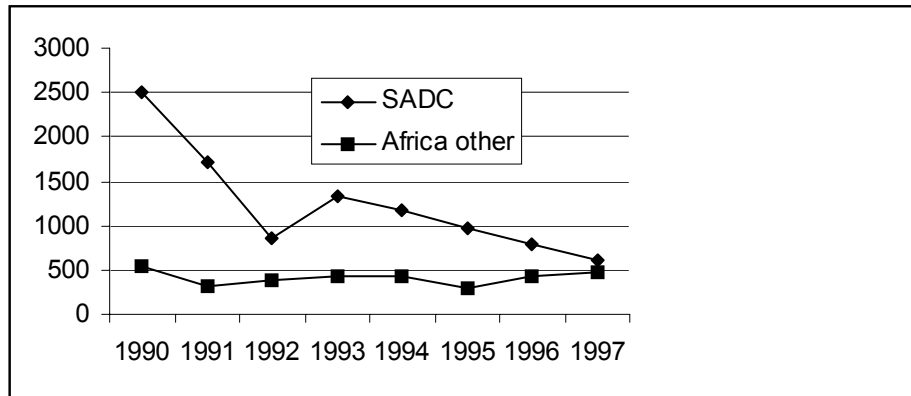
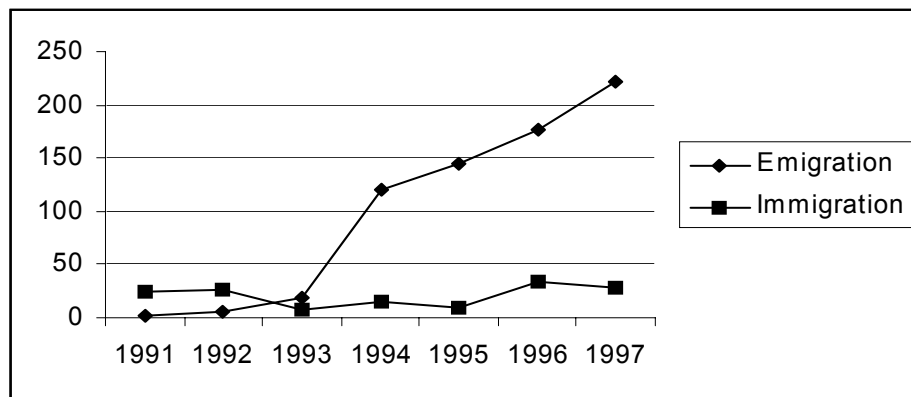


Figure 5. Namibia skilled migration flows with South Africa (Source: SSA)



This evidence contradicts conventional views and expectations with regard to the dynamics of SA with the broader region. In fact, the country has long been attracting intellectuals from the rest of Africa²⁸. This conventional pattern of migration may continue in the future as the country has not lost the reason that makes it attractive: its dominance as an economic power in the region and on the continent.

Much of the decrease in immigration from the region is due to the restrictive policy led by the Department of Home Affairs. In order to protect the labour market from competition of non-SA citizens, the department has strongly limited the access of foreigners to work and residence permits. Considering the present shortage of highly skilled manpower, pressure has been exerted on government to reverse this policy²⁹. The White Paper on International Migration, points to this direction and recommends a more flexible attitude, facilitating the entry of highly skilled workers while still limiting the access of non-skilled individuals and controlling more adequately illegal immigration. In fact, several voices have advocated a policy encouraging skilled

²⁸ Prah 1989.

²⁹ Meyer 1998.

immigration from the neighbouring countries³⁰. Though the view has been that regional development would benefit from this optimal allocation of human resources.

With respect to tensions within the region, Lesotho is one of the countries that has been losing workers to South Africa over an extended period of time. In the past the Basotho came to find jobs in the South African mines. In recent times, however, fewer jobs have been available, as the mines have been taking almost no new recruits at all. Despite this fact, Basotho workers could find work in Lesotho as the country was recording admirable growth with GNP per capita at rates exceeding 10% in the mid to late 1990s. Following the completion of the Katse dam and infrastructure and the political instability experienced in 1998, the country's growth has dropped dramatically though.

As a result those with skills are seeking work outside Lesotho. Many opportunities are available for them in South Africa particularly in sectors where an insufficient number of black candidates have been trained to fill all the available positions. The skilled Basotho take these up leaving skilled jobs unfilled back home. This situation has led to talks of a "brain drain" from Lesotho to South Africa. For example, there were only 1,839 nurses listed in the country's medical and dental register in mid-1998, leaving many established posts unfilled. Lesotho's nurses migrate to South Africa to fill empty posts. They are also attracted by better pay and working conditions.

Among the other countries within the southern African region is the relatively successful country of Botswana. At the time of its independence in 1966 its economy consisted of little more than animal husbandry. However, diamond mining began in the 1970s and subsequently the country's economy began to grow. Foreign skilled labour was imported to foster development. Botswana also implemented a strategy of human resource development and this later paid off as a wide range of positions previously held by expatriates were later filled locally. However, the incomes and positions held by nationals are, on the whole, lower than those of expatriate staff. Meanwhile, job opportunities in South Africa are often more appealing, offering higher salaries and often requiring lesser qualifications.

Zimbabwe, another country that has historically supplied labour to the South African mines has not had the success of Botswana. The recent turmoil within the country has left its economy in desperate trouble. In addition to the unskilled that have already been flocking to South Africa, there may be substantial increases of skilled migrants fleeing worsening conditions in Zimbabwe. Such a move would perhaps help alleviate South Africa's skills shortage and be in line with government's recent realisation that it needs to encourage skilled immigration from the region in order to combat skills shortages. However, it is within South Africa's interests to have stability within the region and, in the case of Zimbabwe, this may only be achieved if Zimbabweans acquire an ability to see the objective reality of their deteriorating situation and thus choose not to follow their current course.

1.3.5. The role of the UK

The UK has always been a popular destination for South African emigrants. At least 800,000 South Africans have British passports and many more could lay claim to

³⁰ Lewis & Ngoasheng 1996, James 1997.

British citizenship. This means that close to one million dual citizens or residents move to and fro between the two countries. In 1995 it was estimated that 120,000 South Africans lived in the UK and it is likely that this number has increased substantially since then. By 1999 conservative estimates were that 300,000 South Africans resided in the UK. This figure includes roughly 50,000 South Africans who are on two-year “work and travel” Commonwealth visas.

Those South Africans who permanently settle in the UK tend to be highly skilled and do well in the business world and other professions. In 1995, the third most common university qualification in London’s financial district and on the boards of the London Stock Exchange’s top hundred companies, after degrees from Oxford and Cambridge, was the University of the Witwatersrand³¹. Furthermore, the services of South African doctors, dentists, nurses and other paramedics are in great demand. According to the British Dental Council, over 200 South African dentists emigrated to the UK in 1998 alone, making up the largest group of dentists from another country. South African teachers are also highly sought after in the UK, with recruitment agencies actively involved in luring thousands away from South Africa. For teachers and nurses seeking better work opportunities as well as those retrenched by the government, working in the UK is a particularly attractive option.

In addition, South African emigrants and those with temporary work permits fit relatively easily into British society. This is because of cultural similarities such as language, sport, driving conventions and historical ties. There is currently no evidence that in the foreseeable future, Britain might lose its appeal to South Africans seeking better working and living conditions.

There is a growing awareness of the importance of the UK as the most attractive destination of skilled South Africans and concern about the effect of such a loss to this country, especially for SA nurses as well as teachers. Voices have been heard asking for action within this regard³² and UK diplomats are taking steps to control these flows.

1.3.6. Production and utilisation of skilled personnel

One way to counter the skills shortages caused in part by the brain drain is for tertiary institutions to produce greater numbers of people that possess the most sought after skills. Available data suggests, however, that institutions of higher learning have failed considerably in this regard. The rate of graduate output may be lagging considerably behind the projected demand for these skills types.

The table below indicates the number of degrees, diplomas, and certificates awarded, South African tertiary education institutions in 1992, 1996 and 1997. Similar figures for later years have not yet been released. However, the last four columns of the table reflect the awards made by the University of Cape Town (UCT). The advantage in having these figures is that they show the trend at this institution up to the year 1999.

³¹ Van Rooyen 2000.

³² Pretoria News, March 29, 2001.

Table 6. Degrees, diplomas, and certificates awarded by universities and technikons 1992,1996, and 1997

Degrees, diplomas, and certificates awarded by universities and technikons
1992, 1996 and 1997

<i>Field of study</i>	<i>1992</i>	<i>1996</i>	<i>1997</i>	<i>Increase (decrease) 1992-97</i>	<i>UCT 1996</i>	<i>UCT 1997</i>	<i>UCT1999</i>
Agriculture and renewable natural resources	1 042	1215	1143	10%	N/A	N/A	N/A
Architecture and environmental design	1290	1322	1143	-11%	111	112	142
Business, commerce, and management sciences	11 273	13 913	13 966	24%	869	788	1012
Communication	738	768	874	18%	N/A	N/A	N/A
Computer science and data processing	1 466	1 697	1 830	25%	73	67	86
Education	12 675	19 005	16 110	27%	222	184	288
Engineering and engineering technology	5 450	5 110	4 768	-13%	370	342	364
Health care and health sciences	5 486	6 772	7 072	29%	329	338	383
Home economics	796	728	1 031	30%	N/A	N/A	N/A
Industrial arts, trades, and technology	260	230	283	9%	N/A	N/A	N/A
Languages, linguistics, and literature	3 678	5 722	5 151	40%	194	184	198
Law	4 110	5 097	4 841	18%	185	231	267
Libraries and museums	511	579	629	23%	37	39	25
Life and physical sciences	3 293	3 577	3 543	8%	314	323	306
Mathematical sciences	858	1 010	994	16%	44	32	52
Military sciences	3	0	1	-67%	N/A	N/A	N/A
Philosophy, religion, and theology	1 080	1 681	1 474	36%	49	50	47
Physical and health education, and leisure	405	469	470	16%	N/A	N/A	N/A
Psychology		4 020	4 157	N/A	186	179	219
Public administration and social services	2 113	5 896	6 311	199%	117	102	218
Social sciences and studies	8 688	5 888	5 720	-34%	432	464	361
Visual and performing arts	1 290	1 290	1 329	3%	119	118	136
Total	66 506	85 985	82 841	25%	3651	3553	4104

Source: Department of Education and UCT

Looking at the national figures (first four columns) first, the table shows that total awards dropped by 4% from 85,985 for 1996 to 82 841 for 1997. Some 17% of the university and technikon awards in 1997 were made in commerce and 9% in health sciences. Only 6% of all awards for 1997 were made in engineering, 4% in life and physical sciences, and 1% in mathematics. Overall, 75% of degrees, diplomas, and certificates were awarded in the human sciences, and 25% in the natural sciences.

In addition, the total number of degrees diplomas and certificates awarded in the period 1992-97 increased by 16,335, that is a 25% growth. Commerce awards increased by a similar margin (24%) during this period. This implies that there was no real growth in commerce awards over the period. This observation is supported by fact that commerce degrees made up 17% of total awards for each of the two years, 1992 and 1997. Engineering outcomes were even worse with a 13% decline over this period. As a share of total awards for the year, engineering awards declined from 8% to 6% in 1992 and 1997 respectively. Furthermore, growth of awards in the health sciences was 29%, only 4% higher than the overall growth for the period. Furthermore, awards in mathematics grew by 9% less than overall growth. There was also an eleven percent decline in the supply of architecture graduates over this period.

In contrast to this mediocre performance, home economics awards grew by 30%, philosophy and religion awards grew by 36%, language awards grew by 40%, and public administration and social services grew by 199%. These statistics indicate that tertiary institutions have been producing a growing number of graduates in fields where demand for these skills has not been growing. Furthermore, there has been little real growth, if any, of awards in the fields where labour demand has grown rapidly during this period. There is therefore a mismatch between supply of skilled personnel by tertiary institutions and their demand in the labour market, which adds to the growing shortage of skills. In the context of this paper, the above results suggest that combined with high exit rates of skilled individuals from the country, the domestic institutions of labour supply cannot be said to be effectively closing the shortages arising both from the natural process of labour demand growth and the increasing levels of skilled worker emigration from the economy.

The UCT figures paint a slightly better picture. There is a drop in total awards from 1996 to 1997 in line with the national statistics. However, total awards in 1999 are 16 % higher than those in 1997. Furthermore, it is reassuring to see growth in commerce, computer science, and health sciences awards on the one hand. Although in most cases this growth is not spectacular especially when taking into account the dip in 1997 awards. On the other hand, engineering awards continue to grow poorly. If UCT is in any way representative of the whole, then moderate advances in the right direction should be observable when post 1997 national figures become available.

1.3.7. Evidence of reverse brain drain

A well-known limit of flow data is that it does not provide information on the durability of the time spent abroad. Whether migration is temporary or permanent, the figures remain the same. Therefore, whatever the accuracy and reliability of the statistics describing the outflows of South Africans, the data does not report on further trajectories of the migrants involved. These people may indeed do 3 things: either stay in the same host country forever (permanent settlement), go somewhere else (re-emigration) or even come back to their country of origin after a while (return). The

issue at stake here is important, both for the general conception of the brain drain and on the South African one, in particular. The status of skilled migrants (transient or not) is indeed uncertain and therefore the meaning of emigration, as a definite loss or not, is debatable. In South Africa, it is sometimes argued that those having left often come back but that their return cannot be tracked down more than their departure since, officially, they never left.

A good way to get an idea of the permanence of the individuals involved in these flows would be to have access to stock data to which the cumulative flows could be compared. Such precise data are obviously not easy to gather. However, the recent existence of an original initiative, the South African Network of Skills Abroad (SANSA), provides a way to investigate further on this country's skilled migrants. SANSA operates as a link between the South African highly skilled diaspora and the national community at home. The figures of these expatriates, at least of those who have been identified and located, may be compared to the numbers of people having left for the same years as the network members. Moreover, the data emanating from SANSA can be cross-checked with those from another source of information. The SESTAT database of the U.S.A. National Science Foundation (NSF) records the country of origin of the Science and Engineering qualifications holders (be it a degree or a professional position), which corresponds to the same inclusion criteria on which the SANSA population is selected. For this reason, the analysis focuses on the USA.

The SANSA lists point to a figure of 3,830 highly skilled South Africans in the USA at the end of the 1990s. The most recent survey of the SESTAT database (1995) refers to a slightly higher figure of 5,202. The difference is thus small and can even be explained on the grounds that the SANSA initial lists could not include, for technical reasons, all the potential network members. These figures may now be compared to the cumulative flows of highly skilled South Africans during all the recorded years of arrival of the SANSA members in the USA. The estimate for these flows is 10185. Comparing this number to the SANSA or the SESTAT figures, it appears that the latter only represent 37.6 and 51% of this estimated population. Therefore, only one out of two or one out of three immigrants stays permanently. The others are supposedly no longer in the USA either because they re-emigrated elsewhere or because they returned to South Africa.

The limits of such a comparison between the two sorts of data are obvious. For instance, the SANSA and SESTAT may include people who have not left South Africa with qualifications and have acquired them abroad. Their numbers may therefore be an overestimation. On the other hand, the outflows mentioned here only refer to the 'professionals' and there may be other highly qualified emigrants therefore not taken into account. In that sense, these numbers may then be underestimated. But at least, what these figures show is the upper limit of a realistic scenario regarding the decision of migrants to stay in this host country. At best, a little more than half of the highly skilled South Africans who have left to the USA are still there today. Have the others come back to the country of origin or have they chosen a third one? This question remains open, as it is very difficult to be conclusive, in the absence of a cross checking, independent source of information, such as the SESTAT database.

The SANSA lists show, however, that the breakdown per country of South African highly skilled expatriates and of recent outflows of the same, are quite similar. It is thus unlikely that massive compensations occur among these major countries, which tends to prove that the re-emigration would rather be limited, except if it were to be towards a country outside this group of five. In other words, if it is not possible to make a conclusive statement, there is though a strong hypothesis to be made that a significant part of the emigrants do indeed come back to the country years later.

2. Impact of the ‘Brain Drain’

The labour demand analysis provided above showed that, in line with global trends, over the past three decades there has been a marked increase in the demand of skilled workers in South Africa. This increased demand was fuelled by rising capital intensity in sectors as well as the advent of the information technology revolution. In response to the higher demand for skills, South African tertiary institutions produced an inadequate supply of people with the required qualifications as was seen in the table above. In addition, the currently unemployed invariably do not possess the required human capital assets to fill these expanding vacancies at the top-end. These high levels of skills shortages are then worsened through the ongoing process of the brain drain.

The option of countering the brain drain by encouraging an inflow of skilled personnel from other countries is arguably the least explored strategy within the brain drain debate. Up until very recently the Home Affairs department had done very little to encourage skilled immigration. The mind-set that has existed up to now has been that immigration of any kind poses a threat to South Africans seeking employment. However, it is reassuring to know that the president has taken active steps to ease the difficulties that non-nationals face when applying for work permits. Indeed, one of the foremost reasons cited by foreign companies for not setting up in South Africa is the difficulty they face when wanting to send their managers here to head operations. Other incentives, such as additional tax breaks, would also have to be looked at as tools for encouraging skilled immigration. Hence, an important outcome from the brain drain has been a realisation, albeit somewhat gradually, by policy makers in South Africa that a potentially successful response to the problem lies in trying to encourage the entry of skilled foreigners, both through promoting the country as location to live and work in and vitally through easing the regulations governing immigration.

An additional outcome from the brain drain lies in the area of input price effects. We have seen that labour demand for highly skilled workers has increased. This general increase in the demand for highly skilled workers would have, as a natural market response, resulted in a rise in relative wages of these skilled individuals. However, the additional shortage of skills caused by the brain drain translates into an even higher price that employers have to pay to employees. In other words, the brain drain, through exacerbating the existent skills shortages in the labour market, serves only to increase the premium paid to those skilled employees who remain in the domestic labour market. At a macro level, it could be argued, that the premium to skilled workers then translates into higher aggregate input costs, so resulting output prices rise as well. Hence, the brain drain may have the impact of increasing the aggregate

costs of employment to firms, through the premium they are forced to pay to non-emigrant skilled employees.

A further impact of the brain drain lies in the somewhat amorphous area of perceptions. The point here is that high flows of skilled workers from a country do not send out a positive signal about the country. If the country's most prized human capital assets are deserting it, then agents such as potential investors are likely to view this as a negative reflection of the country. Hence, foreign investors for example, may begin to question whether South Africa is a good location for their funds, if they perceive the high levels of emigration as a sign that the economic and indeed political future of the country is uncertain.

A more subtle impact of the brain drain, in terms of measurement, is the effect on the internal labour market. This refers to the fact that skilled individuals would often at the workplace, be part of a team, and hence impart their knowledge and skills both directly in terms of the production process and indirectly to other less skilled members of the team. For example, an information technology engineer working in a team would directly ensure that the output is produced effectively and efficiently, but in doing so would be indirectly upgrading the skills of the other members of the team. However, if this skilled employee is lost to the brain drain then this translates firstly into a loss in efficiency and productivity and secondly a loss in terms of the additional skills that would have been indirectly imparted to other individuals in the team or firm.

One of the longer run effects of the brain drain is that the country loses not only the current, but also the future, stock of skilled workers. Skilled workers who emigrate are more than likely to leave the country with their dependents. Their dependents, specifically the children of the primary income earner, have a high probability of also being skilled workers in the future. It is this future cohort of skilled employees that are therefore also lost to the economy. Hence, in the long run, one of the effects of the brain drain is the loss of a potentially larger number of educated workers to the local economy.

Finally, highly skilled individuals earn high wages and therefore have higher consumption and investment expenditure. The effect of the brain drain is to lower these two forms of expenditure and a case could then be made that economic growth is stunted as a result. While accurately estimating the impact of the brain drain on forgone expenditure is a difficult exercise, there can be no doubt that national output measures are negatively affected, through this loss of high-income earners.

3. Perceptions and Debates on the 'Brain Drain' and its Impact

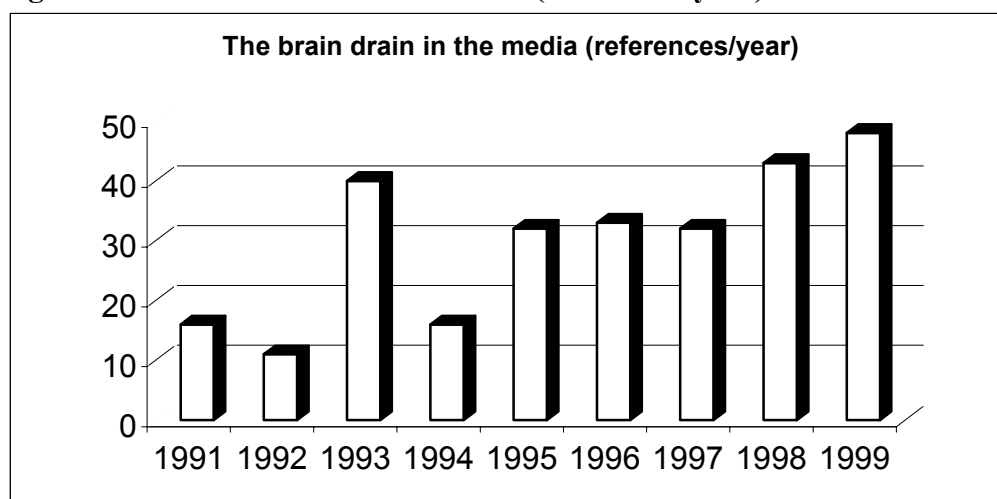
In mid-1994, the South African people freely elected their representatives for the first time. This major event had been preceded by the dismantling of the *apartheid* laws in the late 80s and by the official recognition of the political opposition and the release of Nelson Mandela in the very beginning of the 1990s. This decade has seen dramatic social and political changes, which have obviously generated collective expectations as well as anxieties. The migration issue and especially the brain drain, reflect the latter.

3.1. A national concern in South Africa

Much attention has been given to (real or potential) emigration since and even prior to the beginning of the political changes of the mid-1990s. A good way to objectively measure this evolution is to look at media records of the brain drain during the past decade. A systematic press review of hundreds of articles from South African newspapers spanning the period 1990 to 1999 reveals that the brain drain has been a concern throughout the decade, though with a varying intensity (see figure).

From a low level at the beginning of the 90s, the number of articles increased by 400% in 1993, the pre-transition year marked by political uncertainties and sometimes violence, and diminished the following year with the smooth, peaceful transfer of power in early 1994. It started to increase substantially again, though gradually, during the entire second half of the decade to reach and even pass the 1993 level in the last 2 years.

Figure 6. The brain drain in the media (references/year)



Figures include articles of a reasonable length from 5 daily newspapers and 3 weekly journals, of South Africa.

The media coverage of the emigration issue reflects the doubts of the population with regards to the future of the country. For obvious historical reasons, it has a strong racial connotation. The issues at stake appear to be whether the whites will stay in new South Africa and whether the country will be attractive enough to keep its skilled citizens. Strong parallels of course still exist, indeed, between race and skills distribution. In 1994, at the time of the transition the whites represented about 12% of the population, they still earned more than half of the university degrees attributed this year, while the proportion was at 90% only 20 years before. There is a growing fear that this knowledgeable manpower becomes unavailable to the country at a time it is most needed (see previous chapter on labour market issues).

The emigration issue is thus emblematic of a national dilemma in contemporary South Africa: to redistribute wealth without threatening those who hold and generate most of this wealth. What is feared is a situation *a la* Hirschmann, where the white minority, unable to make its voice heard any more, would then decide to “vote with its feet” and

exit the game³³. Whether the risk is serious or not is debatable but what is at stake is the credibility that this vision has in the South African population today. It receives much credit because there are immediately perceptible reasons why people would possibly leave. These reasons could be summarised as follows:³⁴

- rising insecurity due to the expansion of delinquency in previously protected areas
- levelling of schooling conditions with decreasing quality in the former white schools
- affirmative action giving unfair comparative advantages to black jobs seekers
- decreasing value of the national currency (the Rand), as a psychological factor

However, the emphasis put on racial terms in the debate has slowly decreased as it became more and more clear that many non-white skilled people were also likely to emigrate. Beyond purely South African societal conditions, the international position of the country with regards to economic growth prospects and its competitiveness play a major role. In particular, the capacity for the country to retain or attract skills in an open knowledge-based global economy has been recently extensively discussed, with the reformulation of a migration policy. Attention has thus shifted from the brain drain side to the brain gain one: how to ensure that the balance between inflows and outflows does not turn to a net loss?

The South African government has repeatedly voiced concern about the skills it loses to the UK and other western countries as a result of vigorous recruitment drives, particularly in the fields of health, education and information technology. The health minister has urged the UK to ease up on poaching nurses and medical doctors from South Africa. She has also hinted that the government may have to introduce new legislation in an attempt to halt these large-scale overseas recruitment initiatives. The education minister has also indicated that a sizeable number of teachers are lost to the UK annually. Fortunately, these outcries have not fallen on deaf ears. The UK government has recently agreed to tighten its policy on the recruitment of nurses, doctors and teachers from South Africa. UK medical institutions have, since 1999, been prohibited from actively recruiting from developing countries that are already struggling to raise the standards of their own health services but now this prohibition has been extended to commercial recruitment agencies as well.

3.2. A highly political issue

As an issue directly tied - at least in people's mind - to the country's transformation, the brain drain has become highly politicised. As such, it is sometimes dealt with in an emotional fashion though not without strategic manipulation. Guilt is either thrown upon the migrants for not being loyal to South Africa or to the new dispensation for being incapable of ensuring adequate conditions for them to stay.

For a long time, the very absence of conclusive data fuelled this endless controversy and exacerbated fears or speculative projections. Even if the prediction, made on the

³³ Hirschmann, 1970.

³⁴ Financial Mail, 1996.

eve of the decade, that “250,000 whites...(would) emigrate”³⁵ were not to materialise, there has always been a strong belief that emigration levels were much higher than reported by official figures. These figures show that the number of emigrants dramatically increased from 1993 onwards and that the significant drop in immigration at the same time resulted in a net loss for the country since 1994.

The association of the brain drain with socio-political change has been so widely accepted that no one – so far – has challenged the trend exhibited by the official figures. However, the magnitude of the phenomenon has quickly been put into question. Doubts arose in the mid-90s as empirical findings indicated that the departures were far higher than what the Statistics South Africa³⁶ figures stated. These studies were based on embassies or removal companies’ data showing that more people were leaving than the statistics mentioned. This evidence was later confirmed by a punctual statistical comparison between South African emigration data and South African registered immigration to countries such as Australia and the UK³⁷. Official agencies acknowledged the fact and recognised that their figures could only include the migrants who would declare themselves as such when leaving³⁸. However, the size of the undeclared emigrant population remained unknown. This dark side of the phenomenon had to be explored in order to bring the debate to more realistic grounds.

This is where the new statistics – extracted from the receiving countries’ data – came into the picture. They showed that, even though the figures were much higher than reported by official South African data, the net loss had not begun with the political transition and was as much due to a decrease in immigration as to an increase in emigration. The concern then moved to the less emotional and more practical matter of reformulating the policy along this new perception. In this process the Ministry of Home Affairs has come under criticism. Since 1994, it has indeed followed a hard line approach towards immigration, with emphasis on controlling inflows of foreign citizens and limiting their presence and competition on the national labour market. This policy, trying to address a problem of widespread illegal immigration and consequent xenophobic trends³⁹, has been judged as inadequate regarding highly skilled people. There is now a consensus that they should rather be encouraged to come to South Africa. However, the debate continues, on the ways to make this happen. Indeed, several analysts think that the new law on immigration, coming late and with bureaucratic inertia, should be completed by more proactive dispositions, to look for skills instead of just facilitating their recruitments.

4. Policies to Manage ‘Brain Drain’

As mentioned earlier, migration is a crucial issue in the new South Africa. Consequently, migration policy has been the focus of various official strategic documents: the Green Paper on International Migration⁴⁰ and the White Paper on

³⁵ Cape Times, Star January 23rd 1991 and Cape Argus January 24th 1991.

³⁶ Central Statistical Services.

³⁷ Kaplan 1997.

³⁸ Financial Mail 1996.

³⁹ Crush 2000.

⁴⁰ 1997.

International Migration⁴¹, both having a significant part dealing with the brain drain problem. These exercises led to the draft Immigration Bill⁴². They have been preceded or accompanied by various government departments' internal papers or specific commissions. These are, among others: *The Brain Drain in Science and Technology from the public sector*⁴³; *Report on the Outflow of Science and Technology Skills*⁴⁴; *Towards Best Practice in Immigration Management of Highly Skilled Specialists*⁴⁵; *Restructuring the South African Labour Market, Report of the Presidential Commission to Investigate Labour Market Policy*⁴⁶.

Most of the suggestions or proposals have revolved around immigration rather than emigration issues, for various reasons:

- controlling outflows of skilled individuals is almost impossible in any democratic state of a significant size.
- awareness that the underlying causes of the brain drain as a net loss of skills has increasingly been located on the immigration rather than the emigration side (see section 1.3.4. above).
- the Department of Home Affairs restrictive policy on immigration has come under strong criticism with many firms complaining of being denied imported talents they desperately needed.

In fact, the orientation has been on 'brain gain' and 'brain train' in order to compensate for the outflows of skills. The attempts at addressing the latter as such have been exceptional in number and limited in scope like, for instance, the proposal that every medical student obtaining her/his degree would have a number of years of compulsory practice in the country, as a doctor, or should repay the state for the years of study. It seems that the South African government feels relatively disarmed with regards to measures to contain exits of people in a highly competitive and opened economy. Its base line is that, indirectly, a dynamic industrial fabric stimulated by economic growth on a sound macro-economic policy will reduce the incentives to leave through expanded job opportunities and, therefore, the brain drain as a symptom of socio-economic illness.

The immigration papers have drawn attention to the unnecessary limits put on highly skilled workers' entries. A White Paper on International Migration and a draft of a new immigration bill have been issued in 2000, pleading for a relaxing of the constraints weighting on talents' inflows. In particular, it suggested that the firms hiring foreign people would be allowed to do so in a certain range of sectors and activities and in certain proportions, provided they pay a reasonable levy, which would be used by the national training fund. However, this scheme has come under heavy criticism, as soon as it was delivered. The critics insisted on the excessive bureaucratic procedures involved in the implementation of the measures implied, such as coordination among various departments for vacancies and needs determination and identification. The Centre for Development and Enterprise, a Johannesburg

⁴¹ 1999.

⁴² 2000.

⁴³ Department of Arts, Culture, Science and Technology, DACST 1997.

⁴⁴ National Committee on Innovation, NACI 1999.

⁴⁵ DACST 1997.

⁴⁶ Department of Labour 1997.

business think-tank, emphasised the fluidity of highly skilled manpower and of the knowledge-based economy, pleading for a policy of *laissez-faire*, beyond any ineffective planning in highly skilled human resources allocation.

Since the beginning of the year 2001, the president, Thabo Mbeki, has moved ahead on the issue. Side-stepping the minister of Home Affairs, head of a minority party in the governmental alliance, he has asked the Cabinet's investment and employment committee "to carry out a skills audit to pin point SA's needs"⁴⁷. According to the conclusions, "incentives for attracting the people" (ibid) will be derived.

There are strong signals, therefore, that the skills shortage is being addressed and that the country is moving towards a proactive skills immigration policy. Those most likely to be immediately affected are South Africa's neighbours, the countries from the SADC and the rest of Africa. The probability is high that the migration flows⁴⁸ with this region will thus be reversed. These countries are indeed notably lacking any migration policy and their asymmetrical relationships with the regional power leave little doubt on the result of a strong attractive process. Whether this may constitute a diplomatic problem is debatable. It has often been considered in South Africa that the development of the country would be beneficial to the region as a whole and that the influx of foreign talents would thus have redistributive effects in the medium-term. However, this kind of polarisation may not satisfy those who would lose their local capacities for endogenous growth and development. One may also express some concern about the geopolitical significance of such cascade dynamics⁴⁹: a regional power draws extensively on the pool of local talents to compensate for the loss of its own human resources to major centres of attraction.

5. Conclusions and Suggestions

The description made in this paper clearly shows that there is a brain drain problem in South Africa and that it is becoming one at the regional level. This description also gives way to a better assessment and less emotional reaction to the concern. The concrete steps that are being taken on the immigration side reflect this positive evolution in the way the issue is addressed. This is a result of a better knowledge of what is happening, due to more precise and reliable data. This is where a first recommendation can be made: to secure that the receiving countries provide South African agencies with their figures of SA immigrants, every year. This will make a continuous monitoring of the evolution possible and translate an exceptional study's methodology into a routine exercise. It should not be difficult since these countries embassies have already set up a coordination committee on migration matters which could gather statistics from the main receiving countries on a regular basis and jointly monitor the phenomenon.

The detailed figures given also reveal the importance that the UK still has today and will most certainly have in the future, as the major receiving country of South African skills. As all these countries receiving big numbers of SA talents, it is left with the

⁴⁷ Financial Mail, March 9, 2001 p 28.

⁴⁸ see section 1.3.5.

⁴⁹ Meyer, Kaplan, Charum 2001.

political responsibility of deciding on what should be done in a bilateral cooperation approach. A second recommendation is that, beyond any macro policy decision, there is a very simple and concrete opportunity for action, that deserves to be mentioned. There is, indeed, an initiative called the South African Network of Skills Abroad, which links altogether and with their country of origin the members of the SA intellectual diaspora. This network, coordinated by the Pretoria based National Research Foundation, has today more than 2000 members and a huge potential for development. These members of exceptional qualification and experience are located in 67 countries all over the world.

Yet, there are bigger concentrations in some countries. The UK alone, for instance, represents $\frac{1}{4}$ of the whole membership and some of its people have thought of creating a local chapter of the SANSANSA network to foster activities (training sessions, consulting missions, joint ventures, etc.) in favour of South Africa, possibly with support from the UK government. At the same time, the Institute of Research for Development is organising an exhaustive review of these kinds of networks all over the world, in order to draw lessons and suggest best practices from the existing experiments and promote their efficient use. There is here a promising field for recovering talents through a cooperative scheme beneficial to both parts.

However, the above recommendations are not intended to belittle the importance of initiatives to raise the skills levels of resident South Africans. The SA education and training systems have received unprecedented support from the current government, since 1994. Indeed this is the long-term solution and the correct approach, however, the many residual deficiencies from the past as well as the discriminatory skills system of before cannot be offset in the short run. Currently, registration in the higher education system in SA is stagnant and often even decreasing despite the efforts put by government.

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