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No. 05: Counting Brains: Measuring Emigration From South Africa

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Southern African Migration Project

Counting Brains: Measuring Emigration From South Africa

Migration Policy Brief No. 5

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Editorial Note:

Official South African statistics on the magnitude of emigration from the country seriously undercount. In this paper, the authors have devised an innovative methodology which reveals the extent of the undercount but also provides important insights into the volume and sectoral distribution of emigrants. One of the common strategies suggested for countering some of the negative consequences of “brain drain” is the mobilization of diaspora networks. The paper provides an introduction to one such network, the SANSA project. The paper was written by Mercy Brown, David Kaplan and Jean-Baptiste Meyer of the Development Policy Research Unit of the University of Cape Town. SAMP is grateful to the authors for permission to publish the paper in this series.

Contents

1.0	Introduction.....	1
2.0	Assessing the Real Extent of Emigration.....	2
3.0	Quantifying the Skills Lost.....	4
4.0	Skills Profile of Emigrants.....	7
5.0	Compensating for the Brain Drain.....	11
6.0	Conclusion.....	17
	Endnotes.....	19
	References.....	20

List of Tables

Table 1: South African Emigration to Five Major Recipient Countries, 1987-1997.....	4
Table 2: Emigration of Professionals from South Africa, 1989-1997.....	5
Table 3: Migration of Professional South Africans.....	6
Table 4: Age at Emigration of Sansa Network Members from South Africa.....	14

List of figures

Figure 1: Immigration and Emigration of Professionals.....	6
Figure 2: Classification of South African Immigrants by Recipient Countries.....	7
Figure 3: Classification of Immigrants by Professional Sub-category	9
Figure 4: Natural Scientists and Engineering Immigrants to New Zealand	10
Figure 5: Health Professional Immigrants to New Zealand	11
Figure 6: Location of Sansa Network Members	12
Figure 7: Nationality of Sansa Network Workers	13
Figure 8: Qualifications of Sansa Network Members	15
Figure 9: Places Where Sansa Members Obtained their Degrees	15
Figure 10: Field of Expertise of Sansa Network Members	16
Figure 11: Professional Sectors of Sansa Network Members	17

1.0 Introduction

- 1.1 The brain drain issue has recently become a high-profile public policy issue in South Africa. The media and policymakers are showing increasing concern over the drain of highly skilled professionals from the country. A major unresolved question is the actual scale and impact of the brain drain on South Africa (Meyer et al 2000). There has been growing suspicion that official South African Statistics (SSA) emigration data significantly underestimate the numbers of South Africans leaving the country to settle abroad. But we do not know with any certainty quite how inaccurate this data actually is.
- 1.2 Given the obvious problems with official South African emigration data, a more reliable way of assessing the true extent of emigration would be to examine data from the recipient countries. But there are two problems with generating this data. First, South Africans emigrate to a wide variety of countries. And second, data from destination countries is not always available or accessible. In order to begin to quantify the shortfall in South African statistics, this chapter compares the data from SSA with statistics from the five major recipient countries of South African emigrants – the United Kingdom, Canada, the United States, New Zealand and Australia.¹ The analysis clearly shows that there is significant official underestimation of the extent of South Africa’s brain drain.
- 1.3 The brain drain, by definition, is not simply a question of absolute numbers. The skills profile of emigrants is also an important determinant of the impact on a country and economy (Kaplan 2000). Official South African statistics are not any more helpful on this particular issue. There is simply no way of knowing precisely which skills, and in what quantities, South Africa is losing. Here, destination country data is again of value. Most of the major destination countries collect data on the skills of immigrants by country of origin. This data can be used to generate a

picture of the occupational categories most affected by emigration from South Africa.

1.4 Finally, there is an assumption in much of the debate, that the “brain drain” represents a permanent loss of skills to a country’s economy and development (Meyer et al 1999). This would require that emigrants retain no backward linkages, or that emigrants who have resettled elsewhere are still not interested in contributing to their countries of birth even if the right opportunities are made available. We have argued elsewhere that many emigrants do not cut their actual and emotional ties with home and that they represent a strong latent pool of skills into which a country can tap (Kaplan 1997).

1.5 Diaspora networks are increasingly recognized as a means of mobilizing skills abroad and offsetting some of the negative impacts of skills loss and the brain drain (Meyer and Brown 1999). The SANSA project represents one such mechanism for providing South Africans abroad with concrete opportunities for contributing to their former country. The aims and objectives of SANSA are described elsewhere.² In this paper, we utilize the skills data base generated by SANSA to pose the question of what professions and which sectors are most likely to benefit from a South African diaspora network.

2.0 Assessing the Real Extent of Emigration

2.1 Official SSA migration data is derived from forms voluntarily completed by those emigrating through one of the three main international airports. Emigrants who do not complete the forms or depart from any other location are not captured in the official data.³ In addition, the statistics do not necessarily capture South Africans who leave for some other purpose (such as temporary work, travel or study) and subsequently

-
- settle overseas. Logically, therefore, the volume of emigration is an undercount, but by how much?
- 2.2 To answer this question, data was collected for the major five recipient countries of South African emigrants for the period 1987 to 1997. Recipient country data on South African immigration was obtained from Statistics New Zealand, the Australian Department of Immigration and Multicultural Affairs, the United States Department of Justice, Immigration and Naturalization Service, the United Kingdom Immigration Research and Statistics Service and the Citizenship and Immigration office of Canada.⁴
- 2.3 Immigration categories are reasonably comparable across countries. All of the data sets refer to immigrants entering a country, although some state the origin of the migrant by country of birth (e.g. the US) while others refer to the last country of residence before immigration (e.g. Canada.) We can assume that this difference of recording method does not significantly affect the bulk of the South African data, since most of the people recorded by last country of residence would logically have been permanent residents in South Africa before departure. The data sets are mostly complete, except for the figures for the UK and the US for 1997 and Canada for 1987 – that is, only 3 missing observations out of 45.⁵
- 2.4 Comparison of data from all five recipient countries with South African figures shows consistent official under-reporting of emigration from the country (Table 1). The magnitude of the discrepancy decreases over time, perhaps indicating not only that more people are leaving but that they are less willing to report it. In sum, an estimated 233,609 people left South Africa to settle abroad in these five countries between 1989 and 1997. The official figure for these countries, as reported by SSA, is only 82,811. There is thus significant under-reporting of emigration in official South African statistics: only 35% of the emigration stream was captured by official

data-collection methods. These bald figures do not, however, provide any insights into the profile of emigrants. It is therefore necessary to ask what skills these emigrants possess.

TABLE 1: SOUTH AFRICAN EMIGRATION TO FIVE MAJOR RECIPIENT COUNTRIES, 1987-1997 ⁶												
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
NZ	632	246	209	202	223	422	2 054	2 638	2 046	2 648	2 689	14 009
NZ (SSA)	411	176	83	64	50	126	242	1 465	939	1 266	1 157	5 979
Aus	3 792	3 024	2 424	2 084	1 274	1 021	1 654	2 792	3 190	3 211	4 281	28 747
Aus (SSA)	3 484	2 588	1 275	1 292	928	694	1 309	1 298	1 507	1 767	1 508	17 650
UK	6 700	7 000	11 700	6 400	8 000	6 900	9 400	8 100	4 200	11 400	10 988*	90 788
UK (SSA)	3 817	2 295	1 420	1 804	1 800	1 987	3 716	2 880	2 045	2 243	2 162	26 169
Can	1 748	1 672	1 558	1 083	1 014	1 141	1 822	2 910	1 753	1 526	1 898	18 125
Can (SSA)	755	722	454	349	266	285	566	947	679	774	557	6 354
USA	1 741	1 832	1 899	1 990	1 854	2 516	2 197	2 144	2 560	2 966	2 563	4 6 724
USA (SSA)	543	325	174	278	307	314	566	752	882	963	832	5 936

* All estimates italicized.

NZ=New Zealand; Aus=Australia; UK=United Kingdom; Can=Canada; SSA=Statistics South Africa

3.0 Quantifying the Skills Lost

3.1 A similar comparison between SSA and recipient country data can be undertaken for particular categories of immigrant, such as professionals (Kaplan 2000) (Table 2). This category of immigrant includes “professional, semi-professional and technical occupations”, but excludes managerial, administrative and executive occupations.⁷ Complete data on the emigration of professionals is only available for New Zealand. Australia and Canada have several missing years. US data was only available for one year and no breakdown at all was available for the UK.

TABLE 2: EMIGRATION OF PROFESSIONALS FROM SOUTH AFRICA, 1989-1997										
	1989	1990	1991	1992	1993	1994	1995	1996	1997	Total
Aus	312	291	198	189	356	274	308	420	310	2 658
Aus (SSA)	558*	479	295	213	353	610	765	696	1 122	4 533
NZ	25	24	12	49	93	349	209	297	286	1 344
NZ (SSA)	60	59	63	104	551	656	462	628	631	3 214
Can	94	85	63	69	136	224	173	170	118	1 132
Can (SSA)	327	227	213	243	407	677	421	315	421	3 251
USA	56	68	89	81	153	216	235	254	258	1 410
USA (SSA)	399	418	389	528	461	450	538	618	538	4 339
UK	275	331	296	349	661	450	368	422	444	3 596
UK (SSA)	2 574	1 408	1 760	1 518	2 068	1 782	924	2 508	2 417	16 959

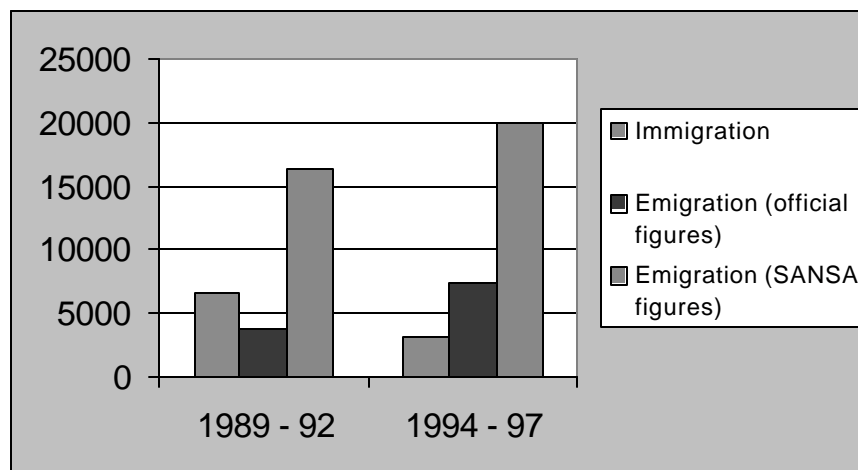
* All estimates italicized.

- 3.2 Given these gaps, two methods were used to arrive at estimates (Table 2).⁸ The first method was the same as that used to assess total emigration. SSA statistics and recipient country data were used to extrapolate total figures for professional emigration. This method generated an estimate of 41,496 professional emigrants between 1989 and 1997. This is nearly four times larger than the official figure of 11,255.
- 3.3 The second method was based on only the countries and years for which data was available and complete. This data was then compared with SSA data for that country and year. There proved to be a very systematic pattern of discrepancies. On this basis missing data was extrapolated and summed with actual figures to derive totals for each period. The figures were slightly lower than those obtained

by the first method, but were still significantly higher than the official SSA figures (Table 3).

TABLE 3: MIGRATION OF PROFESSIONAL SOUTH AFRICANS		
	1989-92	1994-97
Immigration (SSA)	6 714	3 295
Emigration (SSA)	3 721	7 534
Emigration (Sansa figures)	16 447	19 890

FIGURE 1: IMMIGRATION AND EMIGRATION OF PROFESSIONALS



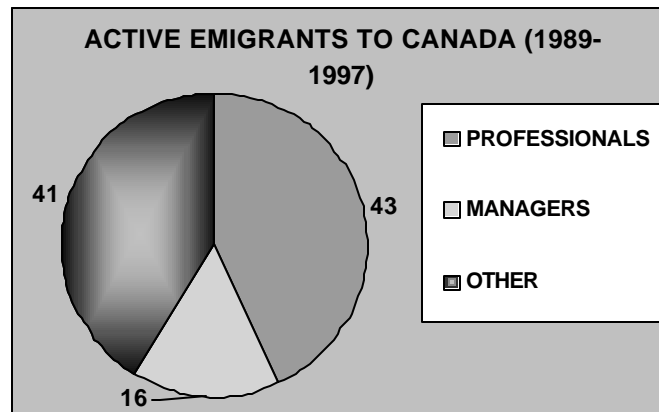
3.4 Immigration of professionals has dropped significantly during the 1990s (Figure 1) (Mattes, Crush and Richmond 2001). This exacerbates the effects of emigration and the brain drain since there is little compensating in-flow of skills. However, this is not a new phenomenon. The loss of professionals began well before 1994. Indeed, a brain drain has been evident during and after each period of political crisis in South African history, dating back to the early 1960s (Kaplan 2000).

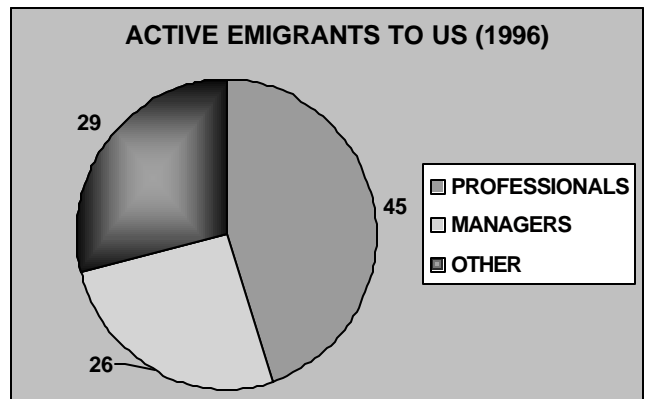
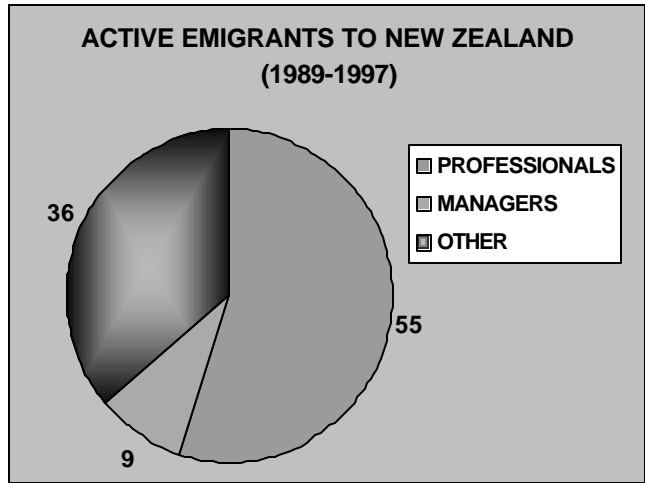
Nevertheless, the volume of the brain drain has increased post-1994. In the period 1994-1997, we estimate that between 6,000 (Method 1) and 4,600 (Method 2) people in the professional category emigrated each year, compared with 3,800 per annum in the period 1989-92.

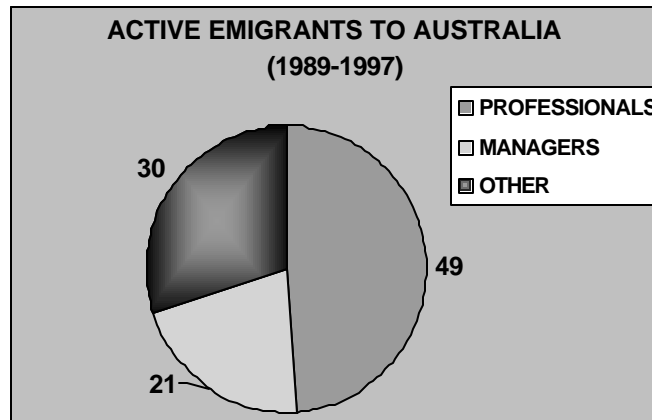
4.0 Skills Profile of Emigrants

4.1 Recipient country data on the occupational profiles of South African emigrants is also incomplete. The figures below summarise the available data. They confirm that emigration represents a considerable loss of skills, training and experience to South Africa and in some instances a major acquisition for the recipient countries.

FIGURE 2: CLASSIFICATION OF SOUTH AFRICAN IMMIGRANTS BY RECIPIENT COUNTRIES

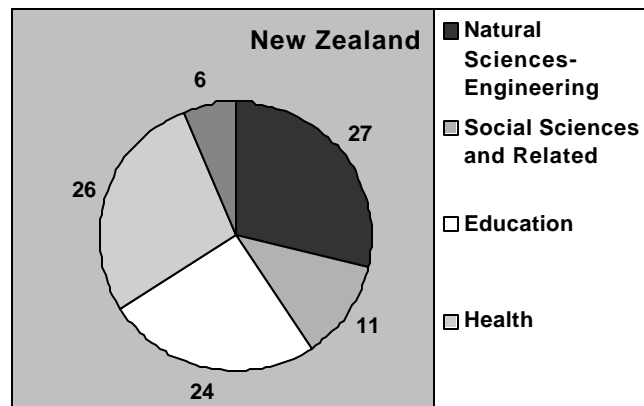


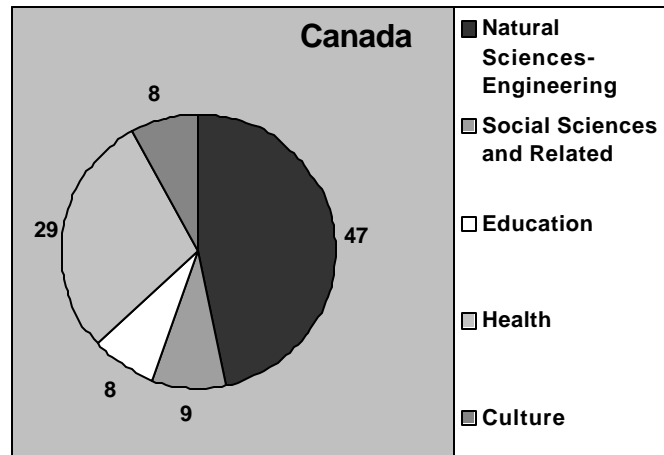




4.2 A more detailed occupational breakdown is only available for two countries: Canada and New Zealand. These countries provide some idea of which occupational categories are most affected by emigration (Figure 3).

FIGURE 3: CLASSIFICATION OF IMMIGRANTS BY PROFESSIONAL SUB-CATEGORY





4.3 In the both countries, natural sciences/engineering and health are clearly sectors in which South Africans cluster in greatest number. Another significant category in the New Zealand data is education. The New Zealand data gives a particularly detailed picture within the main sub-categories. Figures 4 and 5 provide a breakdown of the sub-categories of natural sciences and engineering and health.

FIGURE 4: NATURAL SCIENTISTS AND ENGINEERING IMMIGRANTS TO NEW ZEALAND

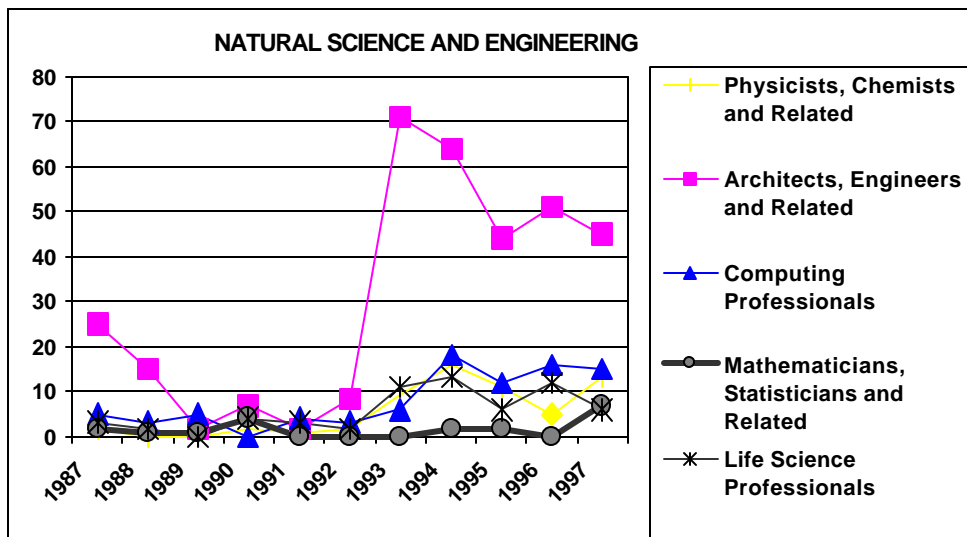
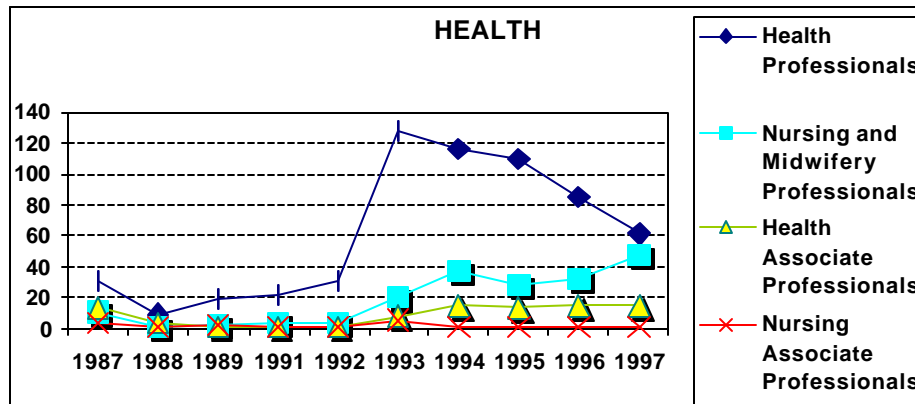


FIGURE 5: HEALTH PROFESSIONAL IMMIGRANTS TO NEW ZEALAND



4.4 Health professionals and engineers account for the greatest share of emigration to New Zealand. However, the numbers decrease after the peak in 1993, compared to an increase in some of the other categories like computing and nursing.

5.0 Compensating for the Brain Drain

- 5.1 The cumulative loss of skills through the brain drain is having a definite impact in South Africa. A restrictive immigration policy has exacerbated these effects. There is sometimes an assumption that once a South African emigrates, they are lost to their country and its development. This is not necessarily true, particularly if there are mechanisms in place for South Africa to tap into the skills of its diasporic population.
- 5.2 In this context, the aim of the SANSA project is to connect highly skilled South Africans abroad with their South African counterparts so they can engage in collaborative projects which will benefit the development process in South Africa. To mobilize this latent population and create the SANSA network, twenty-five thousand questionnaires were sent out to highly skilled South Africans all over the world, inviting them to join the network.⁹ To date, over 2,000 highly skilled South African expatriates have joined the SANSA network.

- 5.3 It is unfortunately not possible to establish the representivity of the SANSA database in relation to the whole skilled South African diaspora. However, the data is certainly likely to be more representative of that section of the emigrant population that is interested in continuing to be part of the country's development. It is therefore useful to provide a profile of this population to ascertain what kinds of emigrant skills are available to South Africa through a network such as SANSA.
- 5.4 The SANSA members are located in 69 countries with the majority in the United States, the United Kingdom, Australia, Canada, Zimbabwe, Namibia and New Zealand (Figure 6). Most of them are between 20 and 60, which means that SANSA is a professional rather than student network. The network consists mainly of males, with females constituting only 25% of the membership. The majority appear to have retained their South African citizenship (Figure 7). This, in itself, may be a sign that they still feel a strong connection to the country.

FIGURE 6: LOCATION OF SANSA NETWORK MEMBERS

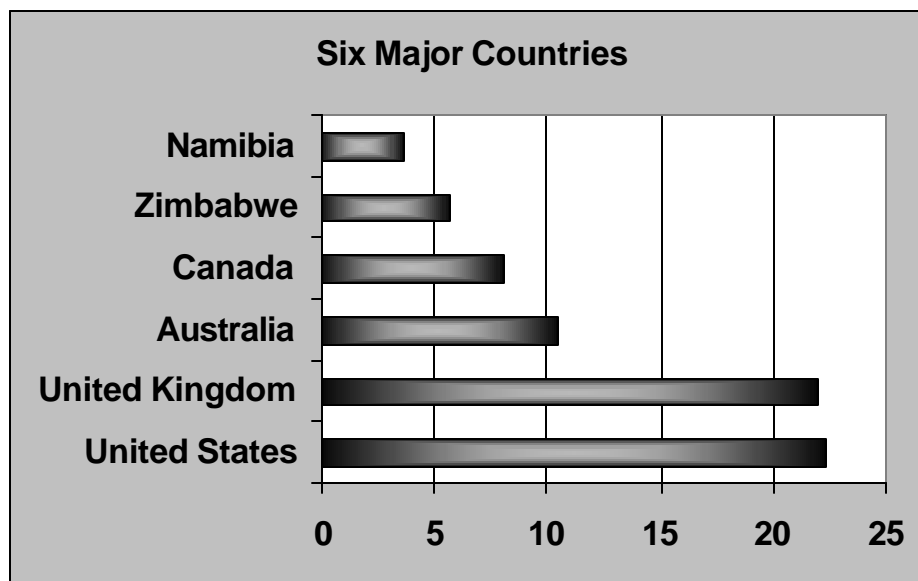
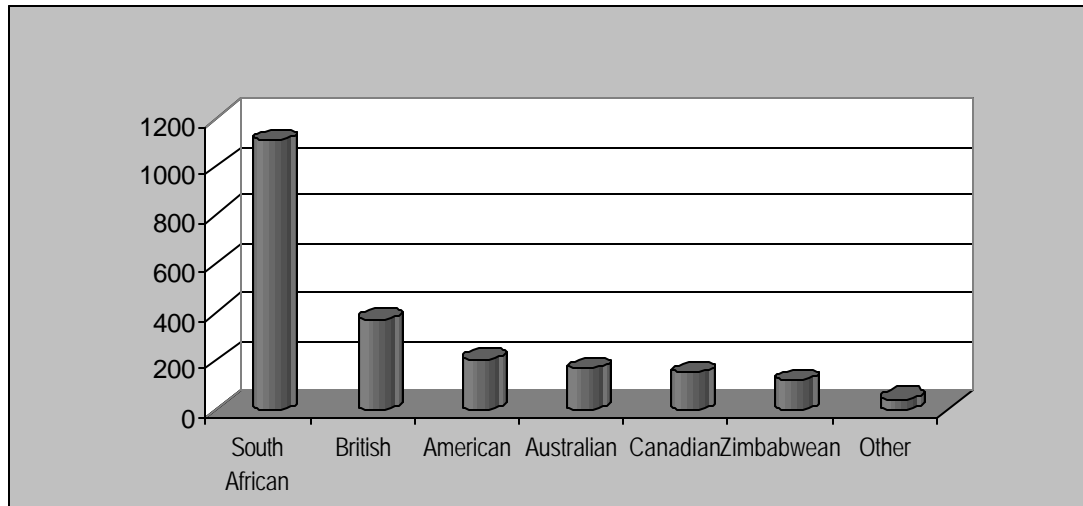


FIGURE 7: NATIONALITY OF SANSA NETWORK MEMBERS

- 5.5 SANSA members left South Africa at progressively later stages in their lives over the decades (Table 4). From the 1950s onwards, the average age of the emigrant population on emigration has become increasingly older. The fact that the average age on emigration increases over time suggests that more and more South African emigrants have left as already trained and established professionals.
- 5.6 Study abroad has often been proposed as a major motivating factor for emigration. For example, according to the National Science Foundation, two thirds of the foreign-born scientists and engineers working in the US obtained their doctorates in the US (Meyer and Brown 1999). Figure 8 shows the qualifications of SANSA members. They are certainly highly qualified with 28.8% holding a doctorate degree. Seventy-six percent hold at least a bachelors degree. Of these, 88% of them obtained their bachelors in South Africa, 89.2 % obtained an Honours degree in South Africa and 57% obtained their Masters in South Africa.

5.7 The vast majority of SANSA members had already acquired at least a first and even a second degree in South Africa. However, a significant number only acquired post-graduate degrees, particularly doctorates and post-doctorate qualifications, once they had left South Africa (Figure 9).

TABLE 4: AGE AT EMIGRATION OF SANSA NETWORK MEMBERS FROM SOUTH AFRICA	
Decade	Average age
1930-39	16
1940-49	16.5
1950-59	22.6
1960-69	23.8
1970-79	27.5
1980-89	30.9
1990-99	32.5

FIGURE 8: QUALIFICATIONS OF SANSA NETWORK MEMBERS

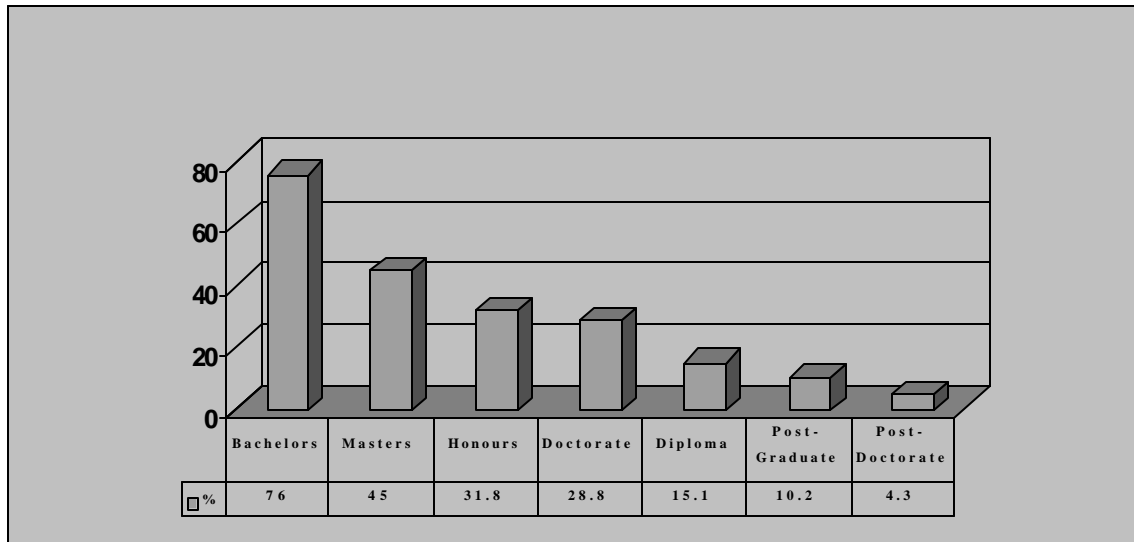
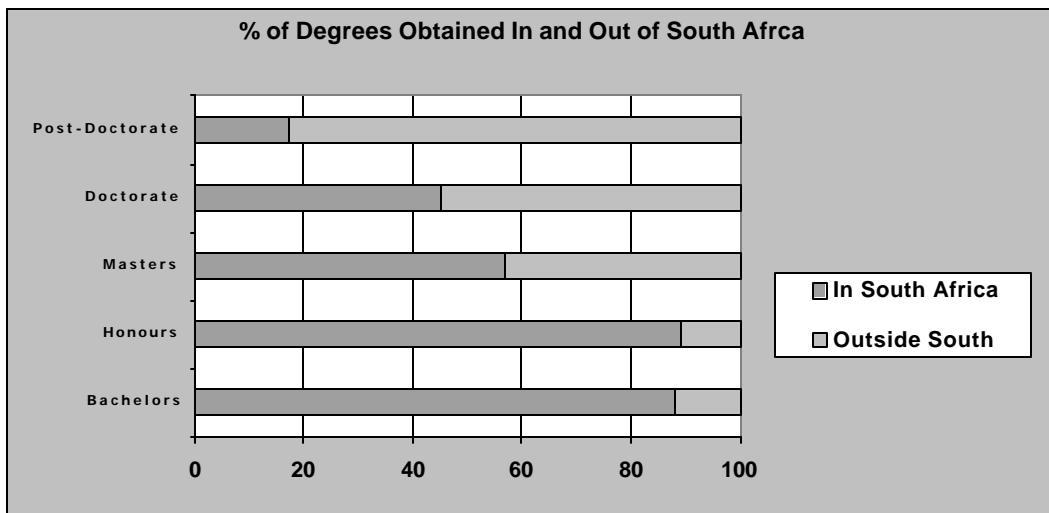


FIGURE 9: PLACES WHERE SANSA MEMBERS OBTAINED THEIR DEGREES



5.8 The diversity and richness of professional skills available through the SANSA network immediately becomes apparent from an examination of the data base. Members with a humanities and social science background are in a slight majority (29%) (Figure 10). However, there are also considerable numbers with expertise in business and management administration (27.5%), natural sciences (23%), health (18%) and engineering (18%). In terms of current profession, interest is highest amongst people working in the private sector (38%), academe (37%), government (10%) and health (8%) (Figure 11).

FIGURE 10: FIELD OF EXPERTISE OF SANSA NETWORK MEMBERS

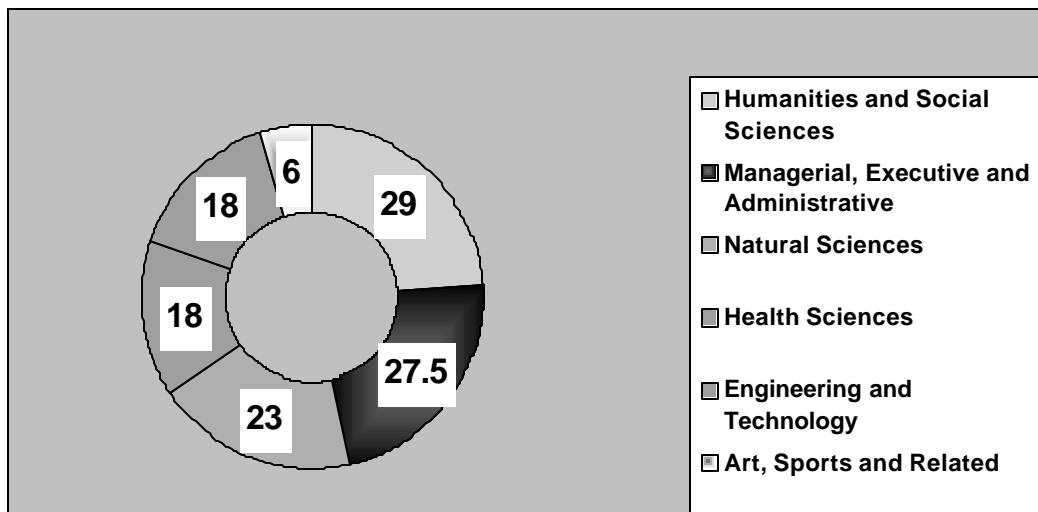
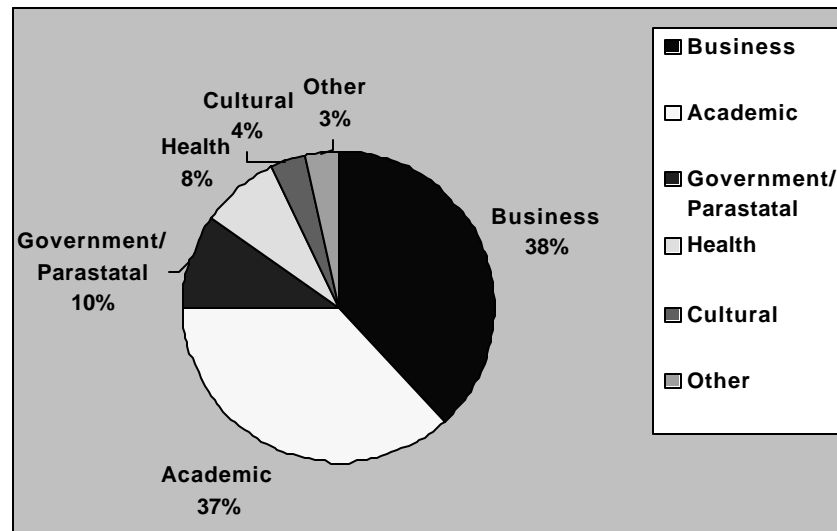


FIGURE 11: PROFESSIONAL SECTORS OF SANSA NETWORK MEMBERS

6.0 Conclusion

- 6.1 This paper highlights a number of important issues surrounding the brain drain. First, the South African brain drain is clearly much more significant than the official figures suggest. Certainly the country needs to revisit its methods of data collection on emigration and, if possible, build in a systematic comparison with data that can easily be obtained from recipient countries.
- 6.2 Second, most emigrants are highly skilled and well-trained and many of them are located professionally in occupations which are in demand domestically. Third, a significant number leave South Africa as well-trained professionals. However, there is a tendency for the professional emigrants to acquire further post-graduate

training abroad. There is therefore a concern that many of South Africa's best-trained persons emigrate -- although frequently their advanced training is undertaken only after emigrating. Fourth, the South African diaspora represents a well-trained, capable, uniquely highly skilled pool of individuals.

- 6.3 Contrary to popular opinion, however, emigration does not necessarily mean that all of these skills and expertise are lost to South Africa. Opportunities do exist for the country to make use of the skills of these expatriates even while they reside abroad. The SANSA network, which aims to connect highly skilled South Africans abroad with their South African counterparts, is a first step towards mobilizing South Africa's diaspora and countering the damaging effects of the brain drain.

ENDNOTES

- ¹ According to official statistics these countries collectively account for 75% of South African emigration. There is no way of determining whether this is true for total emigration, but these are certainly the favoured destinations of the majority of potential emigrants (Mattes and Richmond, in this volume).
- ² See the SANSA website at <http://sansa.nrf.ac.za/>
- ³ Reasons for completing or not completing these forms accurately may vary from one individual to the other. It is understandable that somebody definitely leaving the country might not feel especially obliged to provide information to the government. Immigration data is likely to be more accurate since highly skilled immigrants tend to use legal channels. However, South Africa does have significant refugee and illegal migration movement from the rest of Africa. The evidence suggests that both streams contain numbers of skilled and highly-trained immigrants, even if they are not always specifically using their skills and previous training (McDonald et al 2000, Maharaj and Moodley 2000).
- ⁴ Statistics New Zealand. *External Migration, Permanent and Long-Term Arrivals from South Africa by Period and Occupation*. Ref: C2963TM, 1989-1997; Department of Immigration and Multicultural Affairs of Australia. Bureau of Immigration Research, *South African-born Settler Arrivals for Financial Years 1987-1988 to 1997-1998*; Department of Immigration and Multicultural Affairs of Australia. Bureau of Immigration Research, Table B12, *Settler Arrivals by Region/Country of Birth, By State of Intended Residence By Major ASCO Groups for Financial Years 1991-1992 to 1997-1998*; United States Department of Justice, Immigration and Naturalization Service. Table3, *Immigrants Admitted By Region and Country of Birth, Fiscal Years 1986-1996*; United States Department of Justice, Immigration and Naturalization Service. Table21, *Immigrants Admitted By Major Occupation Group and Region and Selected Country of Birth, Fiscal Year 1996*; Immigration, Research and Statistics Service of the United Kingdom, *International Migration, estimates from International Survey: Commonwealth Country of last or next residence*, Table 2.3, Series MN no. 23, 1987-1996; Citizenship and Immigration Canada (CIC). *Permanent Residents, Table IM7, Country of Last Permanent Residence by Year of Landing, 1988-1994*; CIC. *Permanent Residents, Table IM7, Country of Last Permanent Residence by Year of Landing, 1989-1995*; CIC. *Permanent Residents, Table IM19, Country of Last Permanent Residence by Intended Occupations (Major Groups), 1992-1995*; CIC. *Permitted Residents Admitted From South Africa by Intended Occupation Based on the CCDO Codes, 1996-1998* (personal communication).
- ⁵ Missing figures were extrapolated from SSA data on a proportional basis; see Meyer et al (2000) for a description of the methodology used.
- ⁶ Official Data is from Statistics South Africa. *Statistical Releases, Tourism and Migration*. P0351, Jan 1989-Set 1998; and Statistics South Africa. *Statistical Reports, Tourism and Migration*. 03-51-01, 1989-1997.
- ⁷ The latter category is much smaller and the relevant data discrepancy with official figures varies greatly from year to year and country to country. For this reason, inferences and extrapolations are subject to a much greater margin of error (Meyer et al 2000).
- ⁸ For detailed calculations, see Meyer et al (2000).
- ⁹ The names and addresses of potential members were obtained from the alumni lists of different universities and technikons in South Africa and from South African missions abroad.

REFERENCES

- Kaplan, David E. 1997. Reversing the Brain Drain: The Case for Utilising South Africa's Unique Intellectual Diaspora *Science, Technology and Society* 2(2).
- , 2000. Migration of the Professional, Semi-professional and Technical in South Africa: Past Patterns, Current Trends and Policy. in J. Charum and J.-B. Meyer. *International Scientific Migrations Today: New Perspectives*. Paris: IRD, Colciencias.
- Mattes, Robert, Jonathan Crush and Wayne Richmond. 2001. The Brain Gain and Legal Immigration to Post-Apartheid South Africa. *Africa Insight* 30(2).
- Meyer, J.-B. and M Brown. 1999. Scientific Diasporas: A New Approach to the Brain Drain. UNESCO *Management of Social Transformation (MOST)* discussion paper series.
- Meyer, J.-B., M. Brown and D. Kaplan. 1999. *The Brain Drain in Southern Africa: Old Issue, New Evidence*. Report to the European Commission, Bruxelles.
- , 2000. *Assessing the South African Brain Drain: A Statistical Comparison*. Cape Town: DPRU Working Paper, Development Policy Research Unit.