

## **CHAPITRE 8**

### **The South African Network of skills abroad (SANSA): the South African experience of scientific diaspora networks**

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**Mercy Brown<sup>1</sup>**

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## **Introduction**

This paper will present a case study of the South African Network of Skills Abroad (SANSA) as a specific example of a scientific diaspora network. It will start by providing a brief sketch of the South African landscape, both in terms of its economy and other development indicators and will also look at the issue of brain drain as it effects South African society. This is done to provide a context and background to the establishment of the SANSA network as a response, not only to the brain drain phenomenon, but also other developmental challenges, two of the most important ones being the advancement of its higher education system and the boosting of its science and technology capabilities. It will conclude by highlighting a number of issues which the SANSA network still need to address if it is to be a truly effective response to the developmental challenges mentioned before.

## **The South African Context**

Prior to the democratic transition, during the Apartheid era, South Africa was a highly isolated country. The economic policy pursued by the previous government was one of import substitution which was characterized by protectionism of almost all local industries through high import tariffs and trade subsidies. The new democratic government, however has committed itself to a more open economy and has put specific measures in place to facilitate the opening up of the South African economy, through its macro-economic policy, the Growth, Employment and Redistribution (GEAR) policy. These measures include an aggressive tariff reduction programme, a gradual relaxing of exchange controls, tax incentives to business to attract investment and a programme aimed at making the South African labor market more flexible (Biggs, 1997, p. 48-49). All these measures are aimed at opening up the South African economy and making South Africa more “investor-friendly”. The National Department of Finance and the Department of Trade and Industry have declared international investment and a shift towards exports the most effective means of attaining economic growth in South Africa.

### **Economic Policy**

South Africa was one of the signatories of the General Agreement on Trade and Tariffs (GATT) and has since 1990, reduced tariffs on imports as required by GATT. However, in line with its GEAR commitments, it has reduced tariffs at a faster rate than what it is required to do under GATT. For example GATT requires South Africa to set its tariff levels on agricultural, forestry and fishing imports at 41.2%, but by 1998 the South African government had reduced tariffs on these products to 2.2%. Similarly, the GATT tariff level for manufacturing imports are at 16.1%, but South Africa has brought tariffs on these imports down to 4% (Nicholson, 2001).

South Africa has also entered into major trade agreements with the European Union (EU) and the Southern African Development Community (SADC). South Africa on the 11 October 1999, signed the Trade, Development and Cooperation Agreement (TDCA) with the EU. This agreement establishes a Free Trade Area between the EU and South Africa which means that the EU will cut tariffs on 95% of its imports from South Africa over a ten-year period, while South Africa has agreed to cut tariffs on 86% of its imports from the EU. Already 40% of exports from the EU end up in South Africa. South Africa’s other major trading partners are the United States, Germany, Japan, China/Hong Kong, the Netherlands, Italy, France, Belgium and Taiwan. Between 1995 and 1998, however, South Africa experienced a trade deficit, meaning that South Africa spent more money on importing goods than what it earned in exports (Nicholson, 2001). The South African government’s commitment to creating an open economy also puts immense pressure on local industries to become more internationally competitive. A Global Competitiveness Report of 1996, produced by the World Economic Forum, rated South Africa 43<sup>rd</sup> out of 49 countries in terms of international competitiveness

(Biggs, 1997). Although this survey did not include many other African countries, South Africa was still well behind other developing countries such as Chile, Mexico and Malaysia. It is common wisdom across all sectors of South African society, from government to business to labor, that growing South Africa's skills base and specifically its highly skilled population, will play a very significant role in South Africa's quest to become internationally competitive. But what exactly is the state of South Africa's skills base?

It is now widely accepted that South Africa is facing a skills crisis and that the lack of skills in South Africa is one of the impediments to South Africa's goal of becoming more internationally competitive (Labour Market Commission, Cosatu's Submission on Labour Market Policy in the Era of Transformation 7<sup>th</sup> of June 1999, Department of Labor's 15 Point Programme of Action 1999-2004). This lack of skills in the South African labor market is largely a consequence of labor market policies under the Apartheid system which were characterized by under-investment of the private sector in education and training of the workforce, a fragmented training system and an education system characterized by massive inequalities.

The Southern African Migration Project (SAMP) in 1998 embarked on a project to determine the size of the skilled population in South Africa. For the purpose of their study, they defined a skilled person as "a South African citizen who are 20 years or older, matriculated (last year of high school) or possessing a Technikon diploma or a university degree from a recognized institution or in the final year of studying towards a diploma or degree and currently economically active". Using the All Media and Products survey which is used every year in South Africa to get demographic data of about 30,000 households in South Africa, the SAMP team estimated the South African skilled population at approximately 1.6 million. The skilled population in South Africa constitutes 9% of the economically active population (17 million) in South Africa (Mattes and Richmond, 2000. p. 12).

The skilled population in South Africa is overwhelmingly white (72%) and 26% are black, with Africans constituting 18% of the skilled population in South Africa. Three quarters of the sample has a high school certificate and either a Technikon or a university degree. However, what is certainly a cause for concern, is the lack of highly skilled people as indicated by the % of people with post-graduate degrees in the sample. Of those sampled, only 9% had an honors degree, 5% a masters degree and only 1% a doctorate (Mattes and Richmond, 2000. p. 13). This level of training is crucial for innovation and the advancement of research and scientific capacity of any country. In the context of an already limited highly skilled human resource base, the emigration of highly skilled people is a critical issue for any country, but more so for a developing country like South Africa that is struggling to find its feet in the international arena.

## Migration

### *Brain Drain from South Africa*

The brain drain issue has received much attention in South Africa, especially given the limitations of the South African skills base. The South African media has played a major role in fuelling the brain drain debate in South Africa. In many instances the "size" of the brain drain was blown out of proportion, based on wild assumptions and sensationalism, rather than hard, scientific evidence (McDonald and Crush, 2000).

The SANSA project in 1998 embarked on an exercise to determine a realistic estimate of the size of the South African brain drain. Comparing South African emigration data to data received from the five major receiving countries of South African emigrants (the United Kingdom, United States, Australia, Canada and New Zealand), the number of South Africans who have emigrated from South Africa between 1989 and 1997 was estimated to be 233,609, compared to the official figure of 82,811. With regards to professional emigration, during the same period (1989-1997), South Africa lost 41,496 emigrants. This figure is 3.2 times higher than the official figure of 12,949 (Meyer, Brown and Kaplan, 2000) (see figure 1).

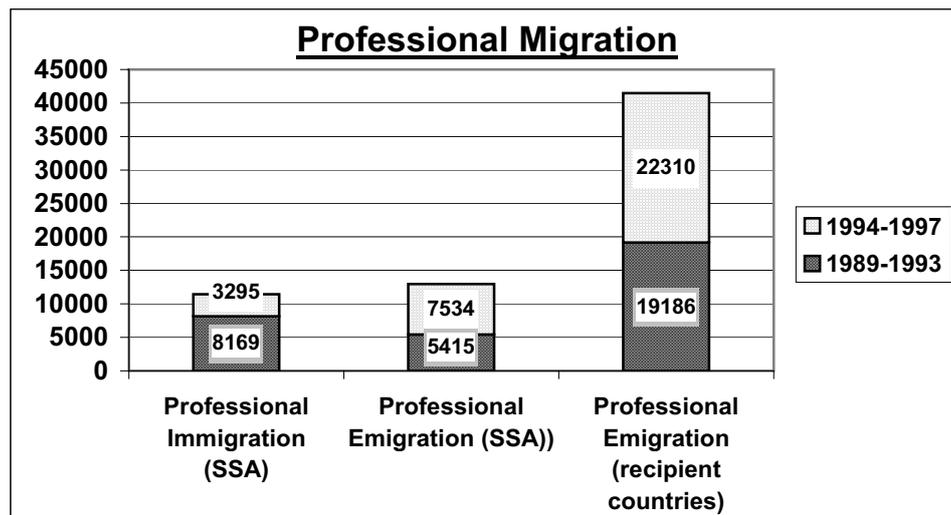


Figure 1: Comparison of Professional Migration Figures from South Africa (1989-1997)

It is clear that South Africa has experienced a significant brain drain and that the official statistics in South Africa has understated the true extent of the South Africa brain drain. The brain drain from South Africa is however, not a recent phenomenon, but started well before 1994 which marked the official transition to democracy. The media in South Africa often painted a picture of a massive exodus of skilled people, following the change of government in South Africa. What is even more significant is that immigration of highly skilled people to South Africa is falling and it is at its lowest point in South African history (refer to figure 1). Professional immigration to South Africa was 8169 in the period 1989-1993 and in the period 1994-1997, an official number of only 3295 professionals immigrated to South Africa. This significant drop in immigration is what effectively accounts for the net loss of skills in South Africa.

The lack of highly skilled people entering South Africa has been attributed to the Department of Home Affairs' strict immigration policies and its vigorous enforcement of the Aliens Control Act (Kaplan, 1996). According to this Act, people wanting to work in South Africa have to return to their home countries to apply for work permits and often wait months before these work permits are approved, if it all. According to MacDonald and Crush (2000), the democratic government in South Africa "has reluctantly come to the view that skills immigration is not necessarily disadvantageous to South Africa". In line with this realization, the Department of Home Affairs has introduced the Immigration Bill which will effectively replace the Aliens Control Act. However, the Aliens Control Act is yet to be replaced by the new act. The new Immigration Bill has been discussed for the past four years in South African parliament and has gone through numerous drafts, but after four years, it has still not been passed, mostly due to political wrangling between the African National Congress and the Inkatha Freedom Party (Merten 2002).

The new Immigration Bill is supposed to make it easier for local business to recruit skilled foreign labor by making it easier for skilled people to obtain extended work permits in South Africa (Merten 2002). A controversial clause in the Bill, which has evoked considerable criticism from the academic and business sectors in South Africa is the proposed "license fee" which employers of foreign skilled labor will have to pay into a national training fund designed to improve the skills of South Africans. This measure has both advantages and disadvantages. On the one hand, it would assist in strengthening South Africa's skills base if it is properly implemented, on the other hand it would increase the cost of hiring foreign skilled labor which could act as disincentive for employing highly skilled foreigners (MacDonald and Crush, 2000, p. 8).

It has been said that South Africa's immigration policies are hampering the process of regional integration which is in conflict with the spirit of programmes such as the New Partnership for Africa's Development (NEPAD) and South Africa's membership of the

Southern African Development Community (South African Regional Poverty Network, 2002). According to the Southern African Migration Project (SAMP), South Africa's immigration policy has played a significant role in slowing down the immigration of highly skilled people from the Southern African region, which is contrary to the picture of a massive influx of immigrants from the region into South Africa, often portrayed by the media. Whatever the weaknesses of the immigration policy, the South African parliament has indicated that it wants the debates around the Immigration Bill to be finalized and it wants the Bill to be passed by June 2002 (Xako, 2002). Given the already limited size of the skills base in South Africa, the loss of highly skilled human resources through emigration and the lack of highly skilled people entering South Africa, what exactly is the state of science and technology capacity in the country? The next section of this paper will attempt to answer this question by examining some key indicators of science and technology capacity, i.e. the higher education system, research and development (R&D) capacities in terms of both R&D human resources and R&D funding.

## Development Indicators

### *The State of Higher Education in South Africa*

The higher education system in South Africa has seen some major transformation in the last few years. This transformation process has been driven largely by two objectives, redressing of the past inequalities of the higher education system and the need for South Africa to become internationally competitive. In line with these ideals, the South African government has set up the South African Qualifications Authority (SAQA) which is responsible for the implementing the National Qualifications Framework (NQF). The aim of the NQF is essentially to facilitate the implementation of the above-mentioned objectives by defining specific standards in education, promoting the integration of education and training and assuring quality at all levels of education and training (International Education Association of South Africa).

Institutions when applying for certification of programmes from the SAQA have to prove that their curricula are relevant to national development needs, are more skills focused and are able to improve opportunities for credit transfer and flexibility in and across programmes. Thus, the re-orientation in South Africa's education system is aimed at making the education system more sensitive to South Africa's development needs, improve the skills of the South African population in order to improve South Africa's position in the international economy. In line with these ideals, the Education Ministry has introduced a National Plan for Higher Education in South Africa aimed at a more productive use of resources through mergers of certain higher education institutions, directing funding at building research capacity with a focus on post-graduate training and increasing the output of publications and encouraging a shift towards the natural sciences as well as setting of targets to rectify race and gender inequalities in the higher education system (International Education Association of South Africa). These developments have been accompanied by an increase in government spending on higher education. In 2000-2001, higher education received R7 billion from the government, which constitute 14% of the total education budget.

## Research and Development in South Africa

South African society is still characterized by massive inequalities across all spheres of society, and the South African government has had to maintain a fine balance between spending on social development projects and spending on scientific research and development. During the first few years after the democratic transition, spending on social projects was prioritized, but recently the South African government has committed itself to the building of research and development capacity and has subsequently increased spending on research and development by 15.3% in 2000. Part of the government's initiatives to build research and development capacity has been the creation of the Department of Arts, Culture, Science and Technology (DACST) and the establishment of a National Plan of Innovation for the country. Many new projects have

seen the light under the auspices of the new DACST. Some of these initiatives are the establishment of the National Advisory Council for Innovation, the National Research Foundation (NRF) and an Innovation Fund into which government poured R125 million during 2000-2001 (International Education Association of South Africa). DACST has also set up Technology Diffusion Programmes aimed at supporting the development of small and medium enterprises in South Africa in their drive to become more competitive by facilitating technology transfers to these enterprises.

## Capacity Building

### *South Africa's Research and Development (R&D) Capacity*

South Africa's R&D human resources capacity is very limited, due largely to skills shortages and a historical "weakness" of South Africa's education system in terms of mathematics and science teaching, both at high school and tertiary levels. This has resulted in a very small turnover of science, mathematics and engineering graduates. In 1997-1998, the government conducted a R&D survey to assess R&D capacity in the country. This survey showed that there were approximately 20,000 R&D personnel and 8566 researchers in South Africa during this period. This translates into a ratio of 0.71 researchers per 1000 of the labor force (International Education Association of South Africa). This is significantly lower than other developing countries with which South Africa is competing in the international market. Shortages are particularly acute in most engineering disciplines, information technology, computer sciences and the economic and business sectors (LHA Manager Consultants, Department of Arts, Culture, Science and Technology, 1997/1998). Black people constitute only 20% of all research and development scientists in the country. Kaplan reported in 1998, that in 1990, only 18% of all scientists and engineers in South Africa black, so there has been only a slight improvement in the percentage of black scientists and engineers since 1990.

### *Funding for Research and Development*

South Africa's Gross Domestic Expenditure on Research and Development (GERD) in 1997/1998 was R4.1 billion, or 0.69% of Gross Domestic Product (GDP). In 1995/1996 government spend R4.5 billion or 0.9% of GDP on R&D development and in 1993/1994, it spend R7.6 billion or 0.75% of GDP on research and development (LHA, Department of Arts, Culture, Science and Technology: 1997/1998) (see table 1).

**Table 1: Gross Domestic Expenditure on Science and Development (GERD)**

Year	GERD	%
1993/1994	R2.6 million	0.75%
1995/1996	R4.5 million	0.9%
1997/1998	R4.1 million	0.69%

According to DACST, South Africa's spending on R&D is very low compared to the countries with which it has strong science and technology relationships and with which it has to compete in international markets. Government has certainly taken steps to rectify this situation and in the 2000 budget, spending on R&D increased by 15%. In terms of the application for funding, DACST's National Research and Technology Audit in 1997/1998 found that most funding goes towards engineering, technology and applied sciences, followed by human sciences, biological, physical and mathematical, information and computer sciences, agricultural sciences and medical and health sciences (see table 2).

**Table 2: Allocation of Science and Technology Spending by Broad Field of Application: 1995/1996<sup>2</sup>**

Field of Application	R (million)	%
Agricultural Sciences	671	20
Medical and Health	456	14
Engineering, technology and Applied Sciences	952	28
Biological, physical and mathematical, information and computer sciences	635	19
Human sciences	653	19
<b>Total</b>	<b>3367</b>	<b>100</b>

### *Research Collaboration and Cooperative Projects*

The National Research and Technology Audit found that in terms of research collaboration based on authorship of published research papers, 29% of publications had multiple authorship, 28% of funds were joint funding, 27% of publications had interdisciplinary collaboration and only 21% involved collaboration with a non-education institution. Research collaboration at the time of the survey was thus very limited and there was not a high degree of collaboration between higher education and the private sector in terms of joint research project.

International collaboration on projects shows encouraging signs. These projects usually have a developmental, applied thrust and are also aimed at strengthening South Africa's research capacity. In 2000, there were more than 40 collaborative South African-German projects. Collaboration between higher education institutions and industry has also improved.

Government has also set up a Technology and Human Resources for Industry Programme (THRIP) which is funded by business and the Department of Trade and Industry and managed by the NRF. THRIP thus brings together various stakeholders from across South African society, including government, industry, science councils and higher education institutions. This project aims to bring all these stakeholders together with the aim of boosting South Africa's skills and technology in order improve South Africa's international competitiveness. In 2000, THRIP spent more than R160 million on collaborative projects in the areas of science, engineering and technology (International Education Association of South Africa, 2000). This shows that although South Africa still lags behind in terms of science and technology capacity in almost all spheres, the government, in partnership with the higher education system and industries in South Africa are taking bold and creative steps in rectifying this situation through greater financial investment in science and technology development and greater efforts aimed at strengthening collaboration between the higher education system and the industrial sector. In the medium term, a scientific diaspora network like the South African Network of Skills Abroad, can play a significant role in boosting South Africa's science and technology capacities by drawing on the knowledge and expertise of expatriate scientists and researchers abroad.

The South African Network of Skills Abroad (SANSA) was established in 1998. SANSA was borne out of the realization that South Africa has a huge pool of highly skilled human resources in the diaspora and if the country could tap into this resource it could play a significant role in boosting South Africa's development efforts.

SANSA was a cooperative venture between the Science and Technology Policy Research Center (STPRC) at the University of Cape Town in South Africa and a leading French agency for Scientific Cooperation, the Institute of Research for Development (IRD). The project

<sup>2</sup> Table taken from "Main Findings of the National Research and Technology Audit" – Chapter 3, Department of Arts, Culture, Science and Technology.

was coordinated by Dr. Jean-Baptiste Meyer, a socio-economist from the IRD who has done extensive work in Asia, Latin America and Africa on the international mobility of skills and Prof. David Kaplan, a leading South African economist and the then director of the Science and Technology Policy Research Center. The SANSA network has been formally endorsed by the Department of Arts, Culture, Science and Technology (DACST) as well as prominent South Africans both in and outside of South Africa. SANSA is also well supported by well-established universities and science councils in South Africa<sup>3</sup>.

SANSA's main objective is to connect highly skilled expatriates to their South African counterparts and to encourage them to contribute their skills and expertise to South Africa's development without necessarily returning home permanently. The first step in setting up SANSA was to obtain the alumni lists of all the major universities and technikons in SA. Twenty-five thousand questionnaires were sent to highly skilled South Africans all over the world. An electronic questionnaire was also available on the SANSA website. After 1 ½ years, more than 2000 highly skilled expatriates had registered as SANSA members. Although this translates into only a 10% response rate, those that did respond to the call to make their skills available to SA, are highly qualified, highly skilled and very enthusiastic about contributing to South Africa's development.

SANSA is a non-profit, independent, a-political association of highly skilled South Africans. Network members consist mainly of highly skilled South African expatriates located all over the world, as well as South Africans inside South Africa. Network membership however, is not restricted to South Africans, but is open to anyone willing to make a contribution to South Africa's development efforts. Membership is free and potential members do not have to pay a membership fee. SANSA is essentially a public initiative, although participation in the activities of the network is open to all sectors of South African society and anyone who is interested in the socio-economic development of South Africa.

The SANSA network has a website which is the first point of entry for prospective network members. The SANSA website contains information about the SANSA network, the aims and objectives of the network, how to join the network, information on opportunities for networking, basic information about South Africa, a list of publications which are downloadable, links to South African institutions, government departments, South African embassies and consulates as well as an update about media coverage of SANSA. Three years after the SANSA website went "live", the site is still well visited. Between 17 October 2001 and 31 March 2002, there were a total of 3746 visits to the SANSA website, which translates into an average of 22 visits per day. Of these 20.2% were return visits and 79.7% were first time visits<sup>4</sup>.

The website also has an electronic questionnaire which prospective network members can fill in. This questionnaire requests basic biographical information, the nationalities of network members, information about their qualifications, where they obtained their qualifications, their professional sectors and activities, their fields of expertise and disciplines as well as the linkages they still have with South Africa. Once people have filled in and submitted the questionnaire, they are members of the South African Network of Skills Abroad and their information is stored in a database which is linked to the electronic form on the website.

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<sup>3</sup> SANSA website – <http://sansa.nrf.ac.za>

<sup>4</sup> National Research Foundation – Progress Report with regard to key performance indicators of the South African Network of Skills Abroad for the period 1 April 2001 to 31 March 2002.

### SANSA Network Members

SANSA currently has 2259 members. SANSA membership increased from 2100 in April 2001 to 2259 at the end of March 2002. This represents an increase of 7.6% in membership over a one-year period. This points to a sustained interest in the SANSA network when more than three years after the creation of the SANSA new members are still joining the network.

The majority of the SANSA network members are males, with males constituting 74.1% of SANSA network membership and females 25.9% (see figure 2).

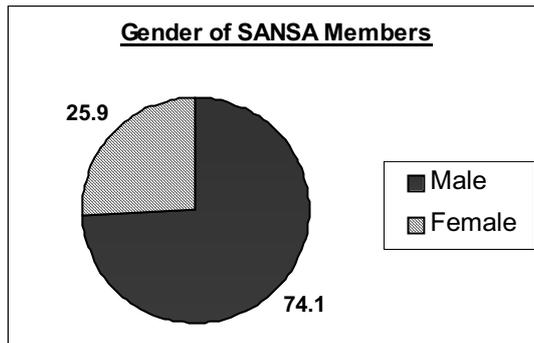


Figure 2: Gender of SANSA Membership

Most SANSA members seem to have retained their South African citizenship with 1316 SANSA members still having a South African nationality. This, in itself, may be a sign that they still feel a strong connection to South Africa. The other major nationalities of SANSA members are British, American, Australian, Canadian, Zimbabwean, German and Namibian (see figure 3).

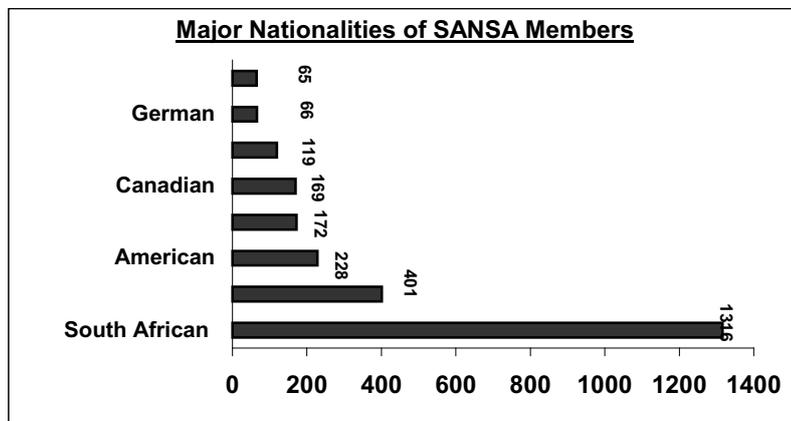


Figure 3: Major Nationalities of SANSA Members

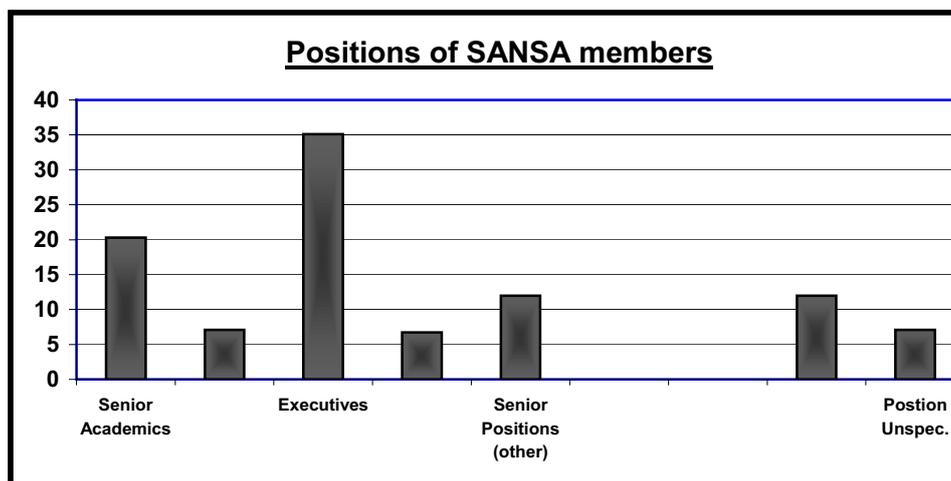
SANSA members are located in more than 60 countries with the majority in the United States, United Kingdom, Australia, Botswana, Zimbabwe and Namibia (see table 3).

**Table 3: Major Countries in Which SANSA Members are Located**

Countries	No.
United States	437
United Kingdom	424
Australia	204
Botswana	159
Zimbabwe	107
Namibia	70
New Zealand	58
Canada	56
Germany	56
Israel	40
South Africa	39
Netherlands	28

What is interesting to note is the increase in the number of members located in Botswana, compared to two years ago, when Botswana was not in the list of top six countries in terms of the number of SANSA members located in this country<sup>5</sup>. The majority of SANSA members are concentrated in the United States and the United Kingdom with close to 40% of SANSA members located in only these two countries.

Most SANSA members are between 20 and 60 years of age. This means that SANSA is a professional rather than a student network. Their professional positions certainly confirm this. The majority of SANSA members occupy senior positions, such as executive and senior academic positions (see figure 4).

*Figure 4: Positions of SANSA Members*

SANSA network members are overwhelmingly situated in the academic and business sectors. Other important sectors are government practice and the health sector (see figure 5).

<sup>5</sup> See Brown, Kaplan and Meyer, 2000.

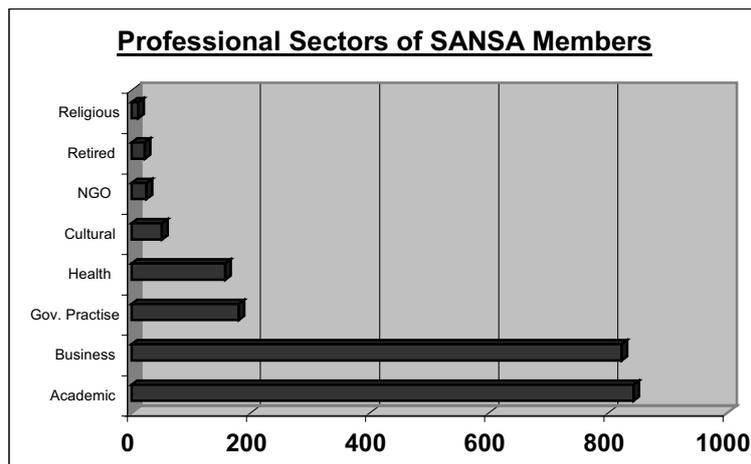


Figure 5: Professional Sectors of SANSA Members

The main fields of expertise of SANSA members are humanities and social sciences, arts, sports and related occupations, natural sciences, health sciences, engineering and technology and managerial, administrative and executive occupations. The main fields of expertise in terms of the number of members located in these fields are managerial, administrative and executive occupations, humanities and social sciences and natural sciences (see figure 6).

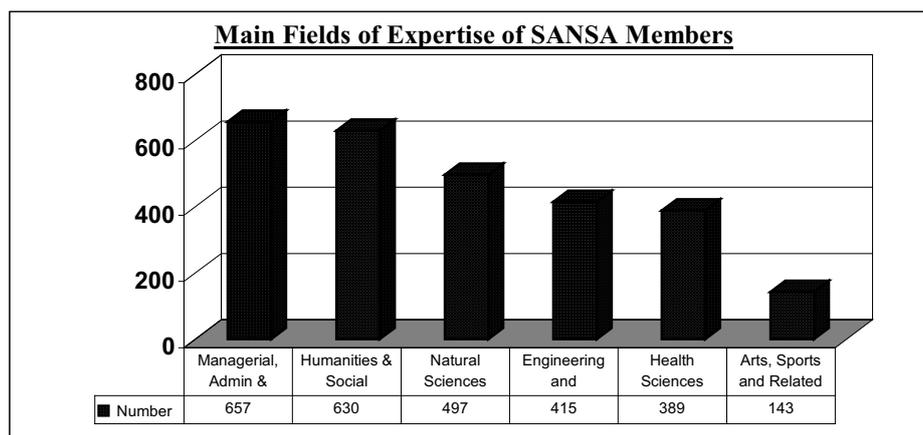


Figure 6: Main Fields of Expertise of SANSA Members

These are followed by engineering and technology, health sciences and arts, sports and related occupations. What is interesting is that the distribution of SANSA members in the main fields of expertise has changed slightly since 2000. In 2000, the majority of SANSA members were in the humanities and social sciences field, today the managerial, executive and administrative field has overtaken humanities and social sciences in terms of the number of SANSA members in this field<sup>6</sup>. Engineering and technology has also overtaken health sciences in terms of the number of SANSA members that work in this field. What is important however, is that the SANSA network covers all the fields in which there is a skills deficiency in South Africa.

SANSA members are highly qualified, with the majority having at least a bachelors degree. A significant number of SANSA members (1072) also have Masters degrees and 644 have doctorate degrees (see figure 7). These are exactly the type of qualifications which are in short supply in South Africa (Mattes and Richmond, 2000).

<sup>6</sup> See Brown, Kaplan and Meyer (2000).

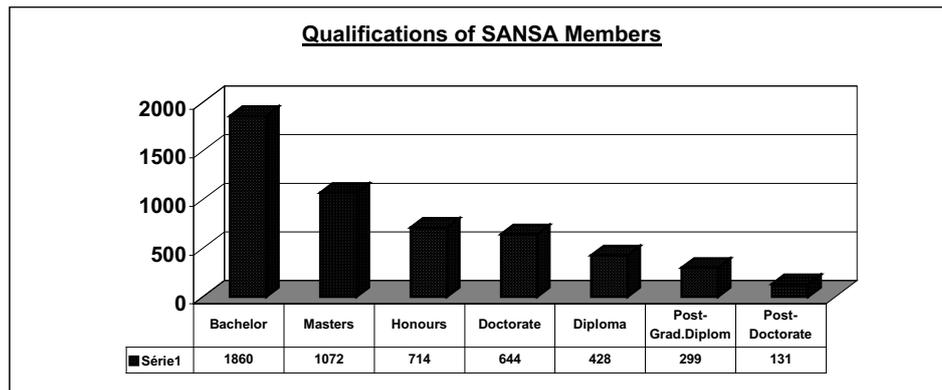


Figure 7: *Qualifications of SANSA Members*

Eighty-eight percent of SANSA members obtained their Bachelors degree in South Africa, 89.2% of them obtained an Honours degree in South Africa and 57% obtained their Masters in South Africa. 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 (see figure 8).

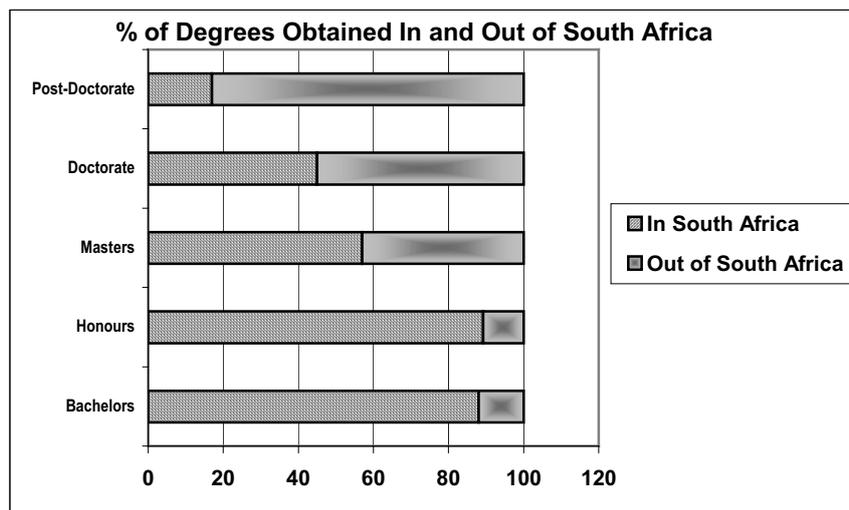


Figure 8: *Where SANSA Members Obtained Their Qualifications*

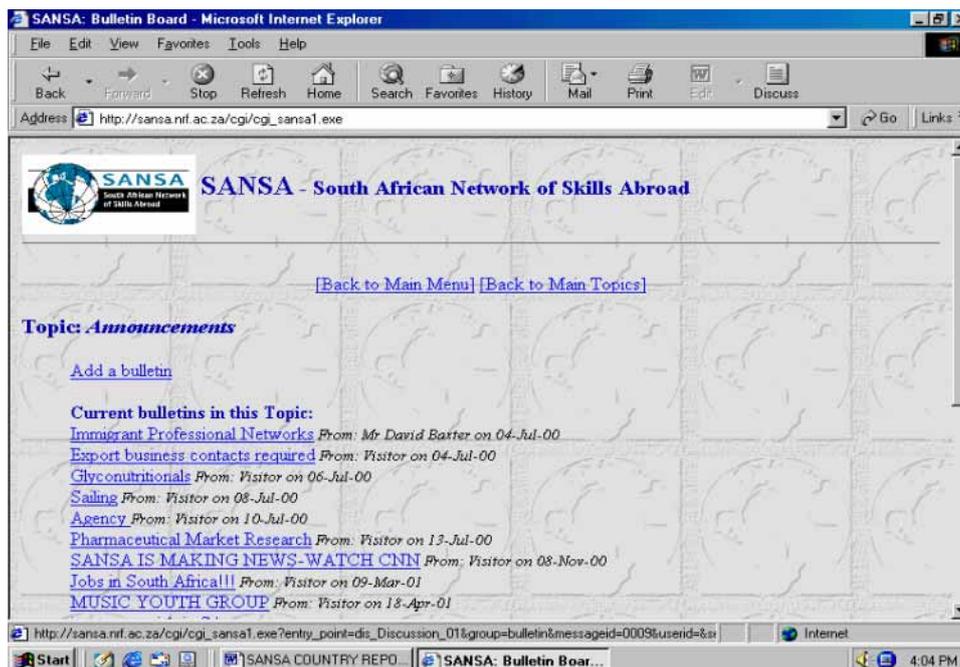
This trend is certainly confirmed by an analysis of the network members’ age at the time of emigration. SANSA members left South Africa at progressively later stages in their lives over the decades. From the 1950’s onwards, the average age of the emigrant population on emigration has become increasingly older (see table 4).

**Table 4: Age At Emigration of SANSA Members From South Africa**

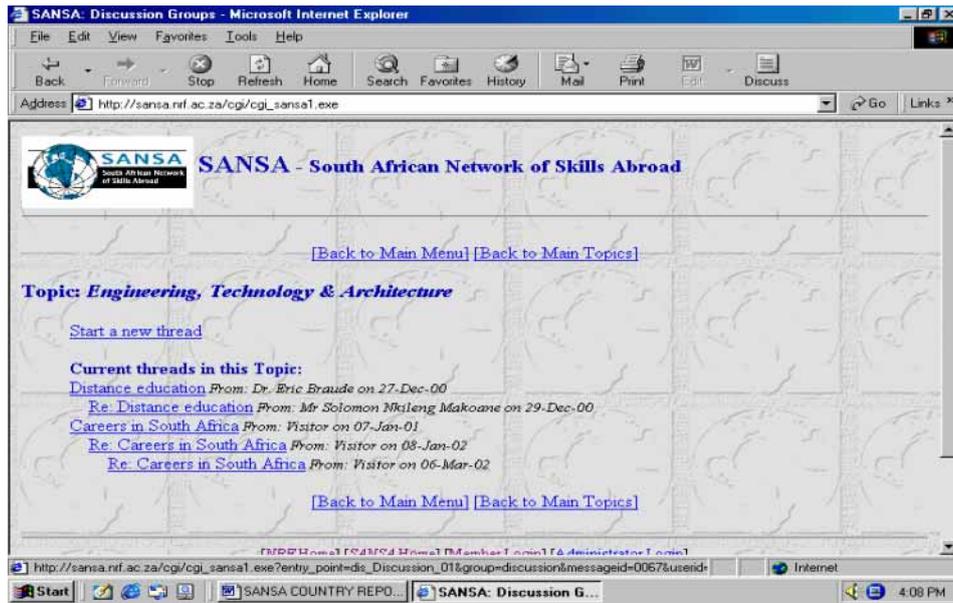
Decade	Average Age
1930-1939	16
1940-1949	16.5
1950-1959	22.6
1960-1969	23.8
1970-1979	27.5
1980-1989	30.9
1990-1999	32.5

The fact that the average age on emigration increases over time suggests that more and more South African emigrants have left South Africa as already trained and established professionals.

The SANSA website contains various electronic discussion groups and a bulletin board designed to facilitate communication and exchanges between network members and between them and their counterparts in South Africa. The bulletin board is a space on the SANSA website where network members or any interested individuals can post notices which they think might be of interest to other network members or people in South Africa (see above example 2).

*Example 1: Bulletin Board Posting*

There are seven discussion groups which mainly relate to network members' main fields of expertise. These are arts, sport and related occupations, engineering, technology and architecture, humanities and social sciences, managerial, executive and administrative occupations, natural sciences, health sciences and a discussion group for issues of general interest to all members (see example 2).



*Example 1: a Discussion Group*

The discussion groups thus allow network members and people in South Africa, who are in the same field to exchange information and knowledge. An analysis of the number of discussions which have taken place, since 2000 shows that there has not been much “traffic” in terms of the number of exchanges (see table 5).

**Table 5: Postings on Bulletin Boards and Number of Exchanges Per Discussion Groups**

	01/01/2000 – 31/12/2000	01/01/2001-31/12/2001	01/01/2002-31/12/2002
Discussion Groups	8	8	2
Bulletin Boards	9	26	12

The most popular discussion groups in terms of the number of exchanges in the discussion group are general and engineering, technology and architecture, followed by humanities and social sciences, managerial, executive and administrative occupations and natural sciences, while arts, sports and related occupations and health sciences have not seen any discussion (see figure 9).

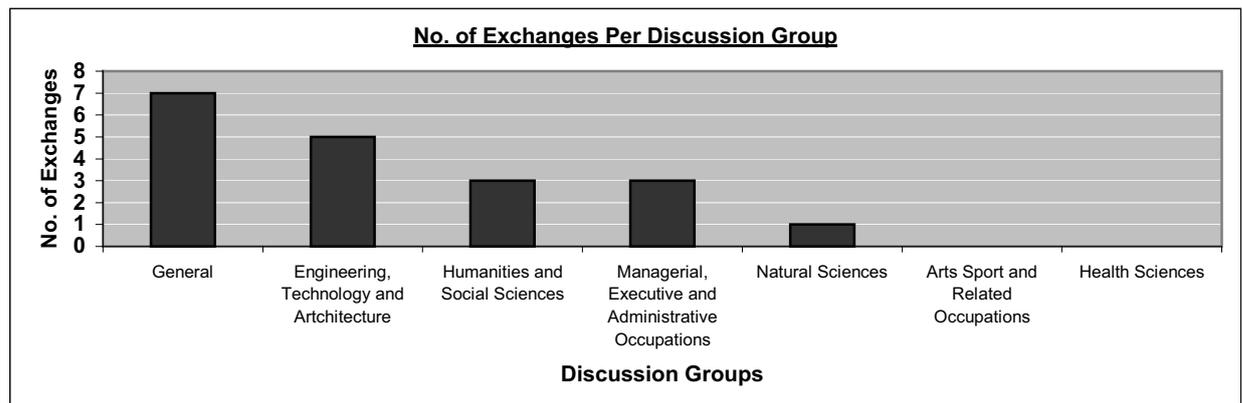


Figure 9: Number of Exchanges Per Discussion Group

The bulletin board seems to be more popular amongst network members. The number of messages posted on the bulletin board more than doubled between 2000 and 2001 and indications are that this trend will continue in 2002. Already, the number of messages posted on the bulletin boards during the first few months of 2002, exceed the total number of messages posted during the whole of 2000 (see table 5). There are eight different topics under which members can post messages on the bulletin board. These are announcements, meetings, conferences and seminars, co-operative ventures, services/expertise offered, services/expertise wanted, jobs offered, jobs wanted and general. The most popular topics in terms of the number of messages posted, are announcements, jobs offered, and co-operative ventures, followed by meetings, conferences and seminars, services/expertise wanted, services/expertise offered, jobs wanted and general (see figure 10).

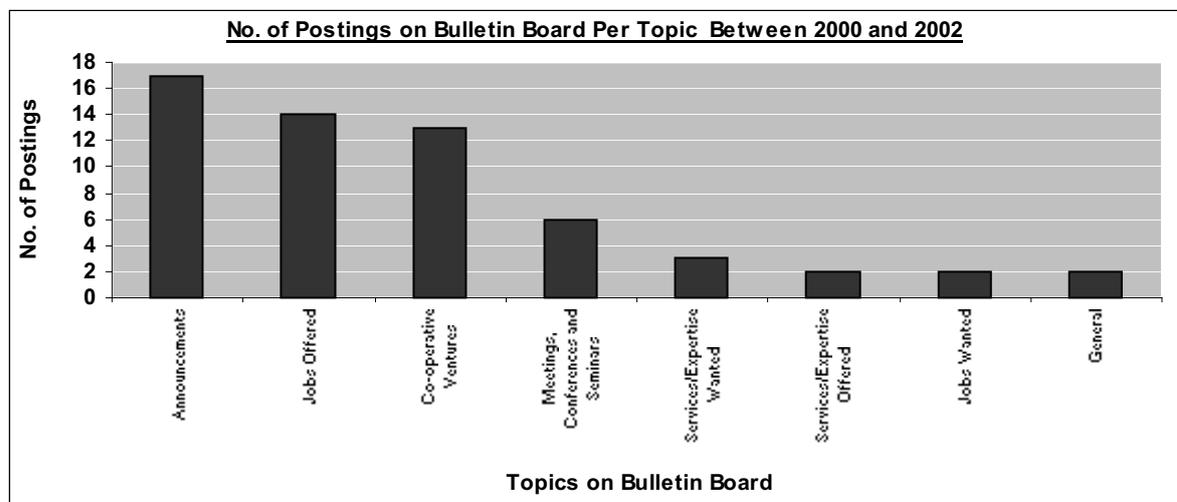


Figure 10: Number of Postings on Bulletin Board per Topic Between 2000 and 2002

### *Major Events in the Evolution of the Network*

In October 2000, the SANSAs project came to an official close at the University of Cape Town and the SANSAs database of highly skilled South African expatriates was handed over to the National Research Foundation (NRF) that is now responsible for the further development and management of the SANSAs network. The NRF was established by the Department of Arts, Culture, Science and Technology and is largely responsible for promoting and supporting research in South Africa. SANSAs is located in the Research and Information Unit of the NRF which houses two other databases, the South African Data Archive (SADA) which collects and preserves data and documentation from large-scale surveys and other research projects and the NEXUS database which is a collection of six databases containing information on current and completed research projects, research networking and research organizations, professional associations, periodical submission requirements and announcements of forthcoming conferences<sup>7</sup>. This is strategically the best home for the SANSAs network.

The NRF forms a very significant part of Department of Arts Culture Science and Technology's mission of building and advancing South Africa's science and technology capacities. The NRF is tasked with the responsibility of advancing South Africa's research capabilities in all humanities, social and natural science disciplines and it does this by making resources available to South African researchers and by forging strategic partnerships locally

<sup>7</sup> Information derived from the Research Information Business Plan for 2002/2003.

and internationally<sup>8</sup>. The SANSA network, thus fits in perfectly with this strategy and could contribute significantly to the building of partnerships between local researchers and researchers in the diaspora, thereby boosting South Africa's research capabilities.

The hand-over of the SANSA network to the NRF was a relatively smooth process, with minimal technical difficulty. Some network members did express a pessimism about this move, which was based more on a general distrust of government institutions rather than the NRF itself. However, this was minimal and the network was successfully incorporated into the structures of the NRF. The SANSA network has seen some exciting developments in the year and a half that it has been housed at the NRF. However, the dynamics of development of the SANSA network has been constrained by an internal restructuring process of the Research and Information Unit of the NRF, in which SANSA is located. One of the difficulties experienced by the Research and Information Unit was a relatively high turnover of staff which resulted in a lack of personnel dedicated specifically to the development and management of the SANSA network. However, this situation has since been stabilized with the appointment of a new director of the research and information unit as well as a project manager who will be specifically responsible for the management and strategic development of the SANSA network. The new director of the research and information unit at the NRF has put the further development of the SANSA network at the top of her lists of priorities for the unit. Despite the institutional difficulties experienced, the last year and a half have seen some exciting developments in the SANSA network.

#### *Projects of the SANSA network*

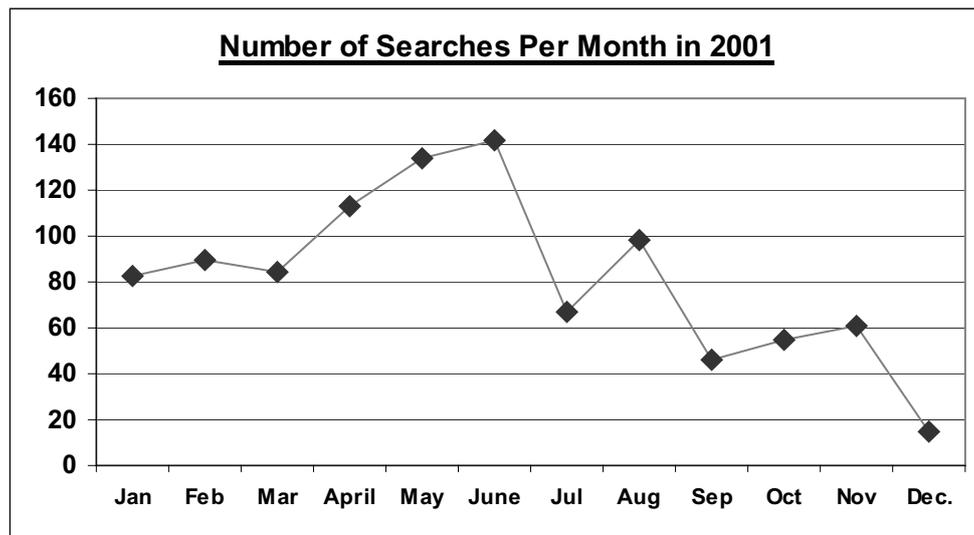
The SANSA website has a search facility which allows interested individuals both inside and outside of South Africa, whether or not they are SANSA network members, to search the SANSA database for the skills that they require. Once they receive the results of their search, interested individuals searching the SANSA database, can then also send an automatic e-mail via the SANSA system to the people whom they wish to link up with. In this way network members' personal identities are protected, because the system does not allow those who search the database access to the personal details or even the e-mail address of network members. Network members, once they receive e-mails from people searching the database, can decide whether or not they want to respond and link up with the person who contacted them. This system is designed to facilitate networking and the establishment of cooperative projects between SANSA network members and between them and their counterparts in South Africa. Figure shows the number of searches which were conducted per month in 2001.

Figure 11 shows that the search facility was quite extensively used in 2001 with an average number of 82 searches per month in 2001. There was a steady increase in the number of searches conducted per month during the first half of 2001. Things slowed down somewhat in July<sup>9</sup>, but picked up again in October and November (see figure 11).

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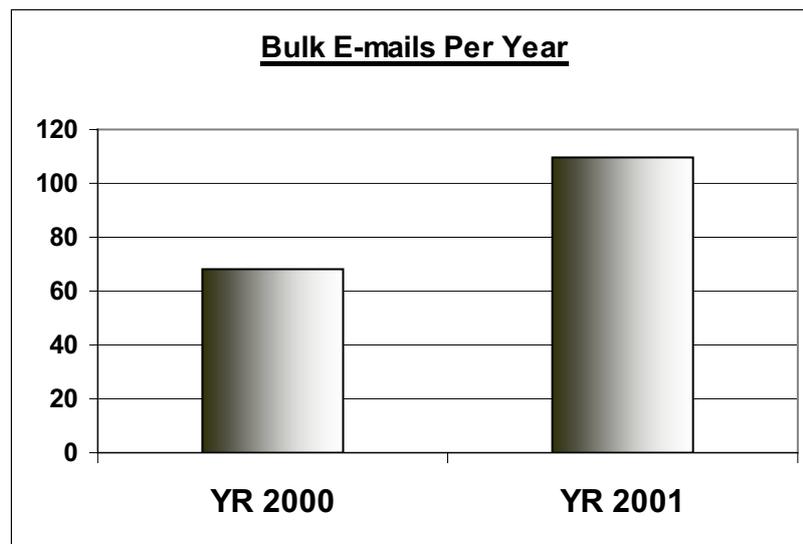
<sup>8</sup> NRF Brochure, 2001 – National Research Foundation – Facing the Challenges Today to Triumph Tomorrow.

<sup>9</sup> This could possibly be contributed to the fact that this time corresponds to the holiday period in overseas countries, where most of the SANSA network members are located.



*Figure 11: Number of Searches Conducted Per Month in 2001*

Only 15 searches were conducted in December, however this is probably due to the Christmas holidays. The automatic e-mail facility also shows some impressive results. There was a 62% increase in the number of bulk e-mails sent between 2000 and 2001. In 2001, 110 bulk e-mails were sent, compared to the 68 sent in 2000 (see figure 12).



*Figure 12: Number of Bulk E-mails Sent in 2000 and 2001*

It is unfortunately not possible at this stage to ascertain exactly what the outcome of these searches was in terms of the number and types of linkages that were established or the projects which came about because of these searches. The new project manager of the SANSAN network, however has indicated that part of the future activities would be to follow up on these searches which were conducted to establish exactly the success of this facility in terms of facilitating the creation of fruitful linkages and collaborations between SANSAN network members and between them and their counterparts in South Africa.

### *Successes*

We do have knowledge of two very exciting projects which used the search and bulk e-mail facilities of the SANSAN database. The SANSAN bulk e-mail facility was used by a researcher at the University of Utah to conduct a survey which was a University of Utah South African-American community academic electronic web survey. The University of the

Witwatersrand (Wits) in South Africa's Public Health department also requested a dataset from the SANSA database in March 2002. The Public Health department at Wits is participating in a multi-country study, funded by the regional office of the World Health Organization to study the migration of skilled health personnel in Africa. A hyperlink was also created from the South African Business Club in London's website to the SANSA website. This would also serve to boost exchanges between South African business people and those in the United Kingdom. Thus, although not many projects have come about through the SANSA network, at least not that we are aware of, the examples above are encouraging in that they prove that there is still sufficient and sustained interest and activity through the SANSA network, more than three years after it was established. They also point to the potential for future projects and activities. The team at the NRF has shown its commitment to the further development of SANSA in the coming months, which in itself is a very important impetus for future projects and activity through the SANSA network.

### *Support Received from South African Society*

The SANSA project sparked a considerable amount of interest in the country, from all sectors of society, the media, academia, government and other political parties. A few months after the establishment of the SANSA network, the two co-coordinators of the project, Dr. Jean-Baptiste Meyer and Prof. Dave Kaplan were invited to present the SANSA project to members of parliament and a few prominent ministers. The SANSA network has also been mentioned by Dr. Ben Ngubane, the Minister of Arts, Culture, Science and Technology (DACST) in speeches to parliament on a number of occasions. SANSA team members were also invited to present the SANSA project to a few political parties. On one occasion, the network was presented to the Youth Conference of the New National Party and on another occasion, the team was invited to present the SANSA network to a few members of parliament of the African Christian Democratic Party.

The SANSA project has always had the institutional support from a number of South African embassies and consulate right from the beginning. In fact, the embassies and consulates played a significant role in the building of the SANSA database of highly skilled South Africans by providing the SANSA team with lists of South African expatriates and their contact details. They also played a big role in advertising the SANSA initiative to expatriates by displaying SANSA posters and information brochures. The SANSA website contains links to about 35 embassies and consulates all over the world. SANSA also has linkages with a number of higher education institutions, notably the University of Cape Town.

As has been already stated, the SANSA project received considerable attention in South Africa. The SANSA team were on numerous occasions invited to speak on national radio stations, the network was covered in a number articles across the printed media, from prominent daily newspapers to specific career journals, like the engineering news, journals for medical professionals, etc. As figure 13 shows, SANSA has received extensive coverage in the media over the past three years.

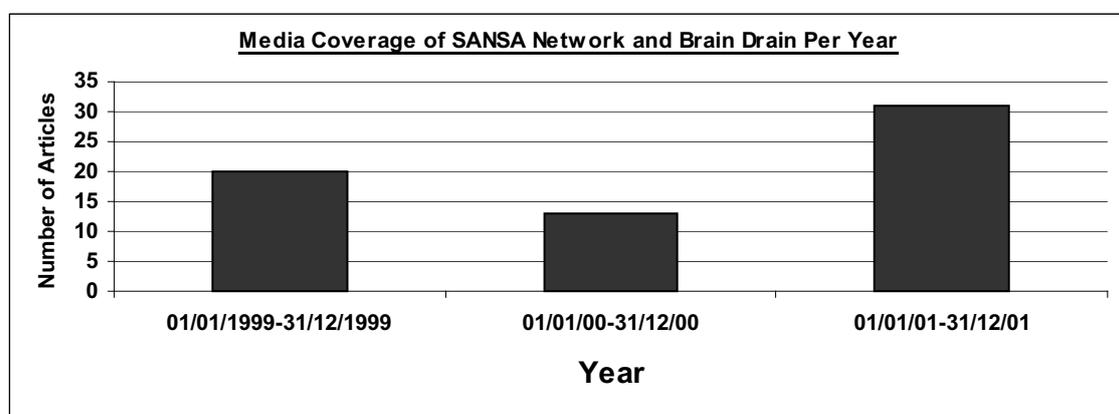


Figure 13: Media Coverage of the SANSA Project

In 1999, a total of 20 articles were written about SANSA in the media, in 2000, this figure dropped to 13, but in 2001 interest in SANSA surged once more and a total of 31 articles were written about SANSA. These include articles in local newspapers (the overwhelming majority), overseas newspapers, web-based articles as well as coverage on television news.

As mentioned before, the SANSA network is now housed at the National Research Foundation (NRF). It is part of Research and Information, which is one of the business units in the NRF. The NRF recently appointed a project manager who will be exclusively responsible for managing the SANSA network, along with one or two other people from the unit. The research and information unit recently embarked on a strategic planning exercise and the future development of the SANSA network was high on the agenda. The aim is to maintain and expand the SANSA network further, to integrate it into the focus areas of the NRF and NRF funded projects and to link SANSA more closely with research expertise in South Africa<sup>10</sup>. To facilitate this process, the SANSA website already contains an on-line link to the Nexus database which is one of the other databases housed in the research and information unit at the NRF.

The Nexus database is a collection of sic databases which contain information on current and related research projects, research networking and research organizations, professional associations, periodical submission requirements, biographical profiles of researchers and information about forthcoming conferences in South Africa. This has excellent potential for fruitful collaboration between South African researchers and researchers from the expatriate community. There are also plans for a public launch of SANSA which will bring together stakeholders from across South African society, business, government, industry, labor, non-governmental organizations and the media. This should go a long way in further publicizing SANSA and the potential that it has for boosting South Africa's development efforts.

#### *Concluding Remarks and Some Recommendations*

South Africa's democracy is only eight years old and after more than 40 years of protectionism and isolation, South Africa, like many other developing countries is struggling to carve a niche for itself in the international arena. These efforts are hampered by a skills deficiency brought about mainly by policies during the Apartheid era which saw an under-investment in the education and training of the majority of the country's population as well as a historical weakness in terms of science and mathematical teaching at all levels of education. The brain drain from South Africa, brought about by large scale emigration of highly skilled people for a long time, accompanied by a decrease in the immigration of highly skilled people to South Africa, particularly in the post-1994 period, have certainly exacerbated the situation in South Africa.

However, the South African government, through the Department of Arts, Culture, Science and Technology, are taking bold and creative steps to remedy the situation through exciting new initiatives such as the establishment of the National System of Innovation and the Technology and Human Resources for Industry Programme. The National Research Foundation, which is also the new institutional home of the SANSA network, is at the center of all these new developments. The SANSA network is thus ideally positioned to play a significant role in enhancing South Africa's science and technology capacities for the socio-economic development of South Africa. The future of SANSA certainly looks promising and judged from the continued interest it still enjoys both from inside and outside of the country after more than 3 years, conditions are ideal for the further expansion of SANSA and activities through the SANSA network. However, what is needed now is to get other stakeholders from the South African society, i.e. business, industry, NGO sector, etc. on board. This is important for the mobilization of resources, both financial and infrastructure, needed to generate action through the SANSA network. It is important that the South African community takes the initiative in this regard and the call for South African expatriates to make their skills and expertise available to South Africa came from inside the home country.

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<sup>10</sup> Research Information – Business Plan 2002/2003.

What is also necessary is a coordinating body which will ensure effective communication and information exchange as well as properly coordinated activities. It is recommended that a consortium body should be established which could consist of the SANSA project management team at the NRF, stakeholders from other sectors of South African society as well as a few SANSA members. This will ensure that the interests of all parties are represented. What is very necessary and an immediate priority is to rejuvenate the interest of SANSA network members, who after three years of limited activity, might have some reservations about the initiative. This can be done by re-establishing contact through maybe a second invitation and to maintain a constant flow of communication between SANSA members and the home country through for example a quarterly newsletter. The layout and editing of which could be the responsibility of one or two members of the coordinating team.

The amount of exchanges between network members and their counterparts in South Africa that have been generated through the bulletin boards, discussion groups, searches of the SANSA database and bulk e-mail system are quite considerable. A glance at the content of these exchanges indicates that they might have resulted in projects and activities which the SANSA project management might not be aware of. What is needed thus is a systematic analysis of these exchanges and a follow-up to see what became of them. This again highlights the need for a newsletter or some kind of space where network members and their partners in South Africa can inform one another of activities and projects which have come about through the network.

As has been mentioned previously, the SANSA website now contains a link to the NEXUS database which contains information on research projects and researchers in South Africa. The aim of this is to create opportunities for networking between researchers in the SANSA database and South African researchers. This paper would like to propose that this process is taken a step further and that research teams or committees be established. These could correspond to the most pressing development needs in South Africa, for example the HIV/AIDS epidemic, alternative low-cost housing, education policy, job creation, etc. A notice can be placed on both the SANSA and NEXUS websites inviting interested researchers to join any of these committees. These committees do not necessarily have to be reserved for researchers, but can be open to anyone working in these fields or who have some kind of expertise in these areas. This could possibly culminate in annual conferences/seminars/workshops which could be organized around any of the above-mentioned topics. This would strengthen the networking process and also make it more purposeful.

The overall conclusion of this paper is thus that the SANSA network holds immense potential for fruitful collaboration between highly skilled expatriates and the South African community. Although the NRF is strategically the most appropriate home for the SANSA network, it is important that other stakeholders from South African society, i.e. other government departments and agencies, the higher education sector, business, industry and the non-governmental sector be brought on board to participate in the proposal, planning and co-ordination of activities in order to ensure that SANSA becomes a true national asset.

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