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**Prof. J.P. de Lange**  
**Chairman of the Main Committee**  
**HSRC Investigation into Education**

**REPORT OF THE WORK COMMITTEE:**  
**DEMOGRAPHY, EDUCATION AND MANPOWER**

**As Chairman I take pleasure in submitting the report of the Work Committee: Demography, education and manpower to the Main Committee for consideration. The final chapter contains a summary of the report.**

**DR P. SMIT**  
**ACTING CHAIRMAN**

## **STATEMENT**

**This report has been prepared by the Work Committee: Demography, education and manpower Instituted by the HSRC Main Committee for the Investigation into Education.**

**This report reflects the findings, opinions and recommendations of the Work Committee: Demography, education and manpower and, where applicable, those of groups or individuals in the work committee with regard to matters about which there are differences of opinion. The findings, opinions and recommendations contained in this report do not necessarily reflect the point of view of either the HSRC or the HSRC Main Committee for the Investigation into Education.**

**This report is regarded by the HSRC Main Committee for the Investigation into Education as a submission of the Work Committee: Demography, education and manpower to the Main Committee. The point of view and recommendations of the HSRC Main Committee will be contained in its final report that will be submitted to the Cabinet.**

# **Human Sciences Research Council**

## **Investigation into Education**

**Report of the Work Committee:**

## **Demography, education and manpower**

**PRETORIA  
JULY 1981**

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# CONTENTS

Page

1.	INTRODUCTION .....	1
2.	DEMOGRAPHY .....	2
2.1	Population growth and migration .....	4
2.1.1	Introduction .....	4
2.1.2	Migration according to province .....	5
2.1.3	Growth in the national states .....	6
2.1.4	Growth according to magisterial districts: 1970-1980 .....	7
	(a) The total population .....	8
	(b) The Whites .....	8
	(c) The Coloured people .....	9
	(d) The Asians .....	9
	(e) The Black population .....	9
3.	EDUCATION .....	11
3.1	Introduction .....	11
3.2	Projections of pupils and staff of ordinary schools .....	11
3.2.1	Projections of White pupils .....	13
3.2.2	Projections of Coloured pupils .....	14
3.2.3	Projections of Asian pupils .....	14
3.2.4	Projections of Black pupils .....	15
3.3	Cumulative standard distribution of pupils .....	16
3.4	Cumulative age distribution of pupils .....	16
3.5	Report on teachers in ordinary schools .....	17
3.5.1	Number of teachers .....	17
3.5.2	Number of pupils per teacher .....	17
3.5.3	Teachers' qualifications .....	18
3.6	Post-school and tertiary education .....	18
3.6.1	Introduction .....	18
3.6.2	Technical institutes, technical colleges and technikons .....	18
3.6.3	Teachers' training colleges .....	19
3.6.4	Universities .....	20
3.6.4.1	Residential universities for Whites .....	20
3.6.4.2	Coloured students at residential universities .....	21
3.6.4.3	Asian students at residential universities .....	21
3.6.4.4	Black students at residential universities .....	21
3.6.4.5	University of South Africa .....	22

7	Education of the handicapped child .....	23
.	MANPOWER .....	25
	BIBLIOGRAPHY .....	32

## TABLES

	Page
TABLE 1: PERCENTAGE DIVISION OF THE POPULATION .....	3
TABLE 2: POPULATION ACCORDING TO PROVINCE: 1980 .....	6
TABLE 3: NUMBER OF MAGISTERIAL DISTRICTS WITH ABSOLUTE INCREASES AND DECREASES IN POPULATION BETWEEN 1970 AND 1980 (PER POPULATION GROUP) .....	6
TABLE 4: TOTAL GROWTH ACCORDING TO NATIONAL STATE (1970 to 1980) ...	7
TABLE 5: RATIO OF SECONDARY PUPILS TO TOTAL NUMBER OF PUPILS .....	12
TABLE 6: PROJECTED NUMBER OF HANDICAPPED PUPILS IN 2020 .....	24
TABLE 7: PROJECTED LABOUR FORCE 1980 - 2000 .....	27
TABLE 8: POPULATION ACCORDING TO INDUSTRY 1980 AND 2000 (ALL POPULATION GROUPS) .....	28
TABLE 9: THE DEMAND FOR TECHNOLOGICAL MANPOWER IN 1977 WITH PROJECTIONS FOR 1987 .....	29
TABLE 10: THE COMPOSITION OF HLM ACCORDING TO SEX AND POPULATION GROUP - SOUTH AFRICA 1979 .....	29
TABLE 11: MANPOWER SHORTAGE IN EDUCATION .....	30
APPENDIXES A - HH	34 - 69



## ORIENTATION

### THE REQUEST

In June 1980 the Cabinet requested the Human Sciences Research Council to conduct an in-depth investigation into all facets of education in the RSA. The request to the HSRC read as follows:

"Your Council, in co-operation with all interested parties, must conduct a scientific and co-ordinated investigation and within 12 months make recommendations to the Cabinet on:

- (a) guiding principles for a feasible education policy in the RSA in order to
  - (i) allow for the realization of the inhabitants' potential,
  - (ii) promote economic growth in the RSA, and
  - (iii) improve the quality of life of all the inhabitants in the country
- (b) the organization and control structure and financing of education
- (c) machinery for consultation and decision making in education
- (d) an education infrastructure to provide for the manpower requirements of the RSA and the self-realization of its inhabitants, and
- (e) a programme for making available education of the same quality for all population groups.

The investigation must be conducted in the light of, among other things, the present educational situation, the population composition in South African society and the means that can be made available for education in the national economy. The investigation must cover all levels of education, i.e. pre-primary, primary, secondary and tertiary.

In accordance with the South African Plan for Research into the Human Sciences, the following plan of action was decided on.

- (a) Prof. J.P. de Lange, Rector of the Rand Afrikaans University would be appointed as research leader.
- (b) After the necessary consultation a high-level co-ordinating committee would be appointed to guide and co-ordinate the Investigation and guarantee its scientific character. Members of the committee would include representatives of interested government departments, the private sector as well as eminent scientists from all the disciplines able to make a contribution to the development of education.
- (c) Representatives of education institutions would be invited to serve on the subcommittees and work groups of the Investigation.
- (d) All population groups would be involved in the co-ordinated conduct of the investigation.
- (e) The investigation would be conducted in a spirit of positive co-ordination, i.e. the available research manpower both within and outside the HSRC and all research activities which had either already been concluded or were still going on, would be included in the Investigation on a basis of voluntary co-operation.
- (f) The HSRC would undertake parts of the investigation itself, but would for the greatest part make its research structure available to contract researchers for the Investigation.
- (g) Priority would be given to the most pressing problem areas so that the investigation could be expedited and interim reports submitted to the Cabinet in good time.
- (h) Where applicable, alternative solutions for problems in education would be submitted.

#### THE MAIN COMMITTEE

The Main Committee of the Investigation into Education, whose members were appointed by the Council of the HSRC, was as follows:

Prof. J.P. de Lange (Chairman)	Rector: Rand Afrikaans University
Prof. A.N. Boyce	Rector: Johannesburg College of Education
Dr S.S. Brand	Head: Financial Policy, Dept. of Finance
Dr R.R.M. Cingo	Inspector of Schools: Kroonstad East Circuit, Dept. of Education and Training
Dr J.G. Garbers	President: Human Sciences Research Council
Mr J.B. Haasbroek	Director: SA Institute for Educational Research, HSRC
Dr K.B. Hartshorne	Centre of Continuing Education, University of the Witwatersrand
Prof. J.H. Jooste	Director: Transvaal Education Department
Prof. S.R. Maharaj	Dean: Faculty of Education, University of Durban-Westville
Dr P.R.T. Nel	Former Director: Natal Dept. of Education; Dept. of Indian Education
Prof. A.C. Nkabinde	Principal: University of Zululand
Mr R.D. Nobin	Inspector of Education: Dept. of Internal Affairs (Indian Affairs)
Mr M.C. O'Dowd	Anglo-American Corporation of SA Ltd
Mr A. Pittendrigh	Director: Natal Technikon
Miss C.C. Regnard	Westerford High School
Dr P. Smit	Vice-President: HSRC
Mr F.A. Sonn	Director: Peninsula Technikon; President: Union of Teachers' Associations of SA
Mr J.F. Steyn	Chief Secretary: Tv1. Onderwysersvereniging; Secretary: Federal Council of Teachers' Associations
Prof. N.J. Swart	Vice-Rector: Potchefstroom University for Christian Higher Education
Mr L.M. Taunyane	President: Transvaal United African Teachers' Association
Dr P.J. van der Merwe	Deputy Director-General: Dept. for Manpower; Deputy Chairman: National Manpower Commission
Prof. R.E. van der Ross	Principal: University of the Western Cape
Prof. F. van der Stoep	Dean: Faculty of Education, University of Pretoria
Prof. N.T. van Loggerenberg	Dean: Faculty of Education, University of the OFS; Chairman: SA Teachers' Council for Whites
Dr R.H. Venter	Director: Univ. Affairs, Dept. of National Education
Prof. W.B. Vosloo	Head: Dept. of Political Science and Public Administration, University of Stellenbosch

After the investigation had been in progress for some months, a request was received from the Department of National Education of South West Africa that it be granted observer status on the Main Committee - this was approved.

From the fifth meeting of the Main Committee Mr J.A. de Jager, Secretary of the Department, therefore also attended meetings of the Main Committee.

At the beginning of the Investigation Dr S.W.H. Engelbrecht was appointed secretary and Dr F.P. Groenewald co-ordinator of the Investigation. In due course the secretariat was expanded with the appointment of Dr D.J. van den Berg, after which the abovementioned three persons acted as secretary-co-ordinators. Mr C.P. Serfontein was later appointed assistant co-ordinator. During the last phase of the Investigation the secretariat was further expanded when Prof. J. McG. Niven of the University of Natal was seconded to the HSRC for three months, from February to May 1981. The administrative staff consisted of Mrs I.S. Samuel, Mrs A. van der Lingen, Miss J.M.M. Botha, Mrs S. van der Walt and other temporary staff.

#### OPERATIONALIZATION OF THE RESEARCH REQUEST

The operationalization of the research request resulted in the establishment of 18 work committees each being responsible for a different aspect of education. Although all the work committees were not identified at the first meeting, the following work committees were eventually established. (For each work committee the name of the Chairman is given who in all cases had to be a member of the Main Committee. The Chairman of the Main Committee is ex officio member of all the work committees.)

Educational principles and policy	Prof. F. van der Stoep
Education Management	Dr K.B. Hartshorne
Education financing	Dr S.S. Brand
Education system planning	Mr J.B. Haasbroek
Curriculum development	Prof. F. van der Stoep
Guidance	Miss C.C. Regnart
Education for children with special educational needs	Dr J.G. Garbers
Building Services	Mr F.A. Sonn
Health, medical and paramedical services	Mr R.D. Nobin
Demography, Education and Manpower	Dr P.J. van der Merwe
Teaching of the Natural Sciences, Mathematics and technical subjects	Mr J.B. Haasbroek

Recruiting and training of teachers  
Innovation strategies in education  
A programme for education of equal  
quality  
Legal matters  
Educational technology  
Language and language instruction  
Education bibliography

Prof. N.T. van Loggerenberg  
Prof W.B. Vosloo  
  
Prof. R.E. van der Ross  
Mr M.C. O'Dowd  
Mr A. Pittendrigh  
Dr P.R.T. Nel

Only in the case of the last work committee was a chairman not appointed from the Main Committee. Miss H.J. Otto of the HSRC library compiled the bibliography for each of the work committees.

During the last stages of the Investigation a Synthesis Committee was appointed to consolidate especially the work of three work committees, namely Education management, Education system planning and Education financing. The chairman of the Main Committee of the Investigation into Education was appointed chairman of the Synthesis Committee.

#### THE SCOPE OF THIS REPORT AND THE CONSTITUTION OF THE WORK COMMITTEE

This report deals with the activities of the work committee: Demography, education and manpower. The first meeting of this committee took place on 16 September 1980 followed by a further three meetings before the final report was ready for submission to the Main Committee.

Dr P.J. van der Merwe was appointed as chairman of this work committee. He acted as chairman at the first two meetings but, owing to parliamentary duties, could not attend the last two meetings and Dr P. Smit took the chair.

The following persons were appointed members of the work committee.

Dr P.J. van der Merwe - Chairman  
Dr P. Smit  
Mr M.C. O'Dowd  
Mr A. Pittendrigh  
Mr F.A. Sonn  
Dr R.H. Venter

Mr C. van Niekerk  
Dr S.W.H. Engelbrecht - Secretary  
Mr D.J. Bezuidenhout - Recording secretary

The work committee met on the following dates.

16 September 1980  
10 November 1980  
15 Januarie 1981  
16 March 1981

#### RESEARCH AND RESEARCH ASSISTANCE

The research fell under the following three headings.

Demography, Education and Manpower

- (a) Demography: Dr P. Smit, assisted by Mr P.C. Kok, handed in a report illustrated by means of maps on the growth and migration of the population. This report was included, without any changes as part of the final report.
- (b) Education: Mr C. van Niekerk, assisted by Messrs D.J. Bezuidenhout and P.J.T. Hamman submitted three reports to the work committee in which historical data, with projections up to 2020, were provided in respect of numbers of pupils and students for all population groups and all educational institutions from the primary to the tertiary levels. These data were also made available to other work committees e.g. to the work committee Financing of education and the work committee for Building services for the calculation of education financing and accommodation.
- (c) Manpower: A report of the SA Institute for Manpower research of the HSRC was received by the work committee. Frequent use was also made of the findings of the Manpower commission as reflected in its report on high-level manpower, when the final report of the work committee was compiled.

The reports that were received as well as the final draft report of the work committee, were submitted to Prof J.L. Sadie of the University of Stellenbosch for evaluation. He generally agreed with the report with the proviso that the high population projections of the HSRC in respect of the Black population should rather be regarded as medium projections.

The report was compiled by Mr C. van Niekerk of the South African Institute for Educational Research of the Human Sciences Research Council.

**THANKS FOR CO-OPERATION**

The work committee wishes to thank all the people who submitted reports and especially Prof. Sadie for his evaluation of the projection methods.

## REPORT OF THE WORK COMMITTEE: DEMOGRAPHY, EDUCATION AND MANPOWER

### 1. INTRODUCTION

The Work Committee, as its name indicates paid attention to three aspects of the investigation, namely demography, education and manpower as applicable to the Investigation into Education.

This synopsis of the reports dealt with by the Work Committee, only provides an overall view of the conclusions that were drawn - and frequent reference will be made to the original reports and documents for more detailed information. A large number of tables and graphs on each of the four population groups of the RSA appear in the original reports, but for the purposes of this report a few abridged tables and graphs have been included as appendixes for all the different population groups together. The different techniques used for the projections are also not fully dealt with in the report, but nevertheless, appear in abridged form as appendixes. Five maps of South Africa are also included to indicate the mobility of the different population groups.

The following factors must be kept in mind when the report is being dealt with:

- (i) The data basis of the South African population is incomplete in many respects; reliable figures for the number of births and deaths of Blacks are lacking. This makes any projection difficult.
- (ii) The South African population is undergoing structural changes and the urbanization of the Black population especially could influence the projections to a great extent.
- (iii) Owing to the political development in South Africa immigration figures have been very uncertain during the past few years. There has for instance, been an increase of White immigrants from Zimbabwe recently and future trends will depend on political development.



(iv) As far as projections for figures regarding secondary and tertiary education are concerned, it is assumed that differentiation will remain unchanged in the education system.

(v) Finally it must be pointed out that any projections for a period as long as 40 years must be treated with great circumspection

## 2. DEMOGRAPHY

Demographic data in respect of the present and expected numbers of the different population groups in South African are of the utmost importance to the Investigation into Education. Knowledge of fertility, mortality, migration and mobility of the population groups is essential for planning purposes with a view to projections of the total and school population as well as the labour force of the future.

During 1976 the Department of Statistics (DOS) made population projections based on the 1970 census and mid-year estimates.<sup>1)</sup> In 1980 the Human Sciences Research Council (HSRC), however released a publication<sup>2)</sup> in which new projections were made that differed considerably from those of DOS for the following reasons:

*"Official statistics show that the birth-rate of Coloured people and Asians decreased during the period 1970 to 1977 by 25,3% and 24,4% respectively. The corresponding decrease in the White birth-rate was 26,7%. No official fertility data are available for the Blacks, but according to an investigation by the HSRC it appears as if a decrease in the birth-rate of this population group did occur though not to the same extent as was the case with the Whites, Coloureds and Asians."<sup>3)</sup>*

Since only preliminary figures are available in respect of the 1980 census, it was decided to use the population projections of the HSRC as the basis

1. Department of Statistics: Report 02-06-01 1976
2. Van Tonder J.L. and Mostert W.P. Population projections for Southern Africa for the period 1970-2020. HSRC Report S 73 1980
3. Ibid. p.1

for the projection of numbers of pupils and not those of DOS in view of the sharp decrease in the birth-rate of the different population groups. The HSRC made two population projections based on a high and a low fertility level respectively.

The projection based on the low fertility level was accepted for use in further projections. The projections of the HSRC include the three independent Black states.<sup>4)</sup>

The percentages by which the population is expected to increase over 40 years and the annual growth-rate will be as follows:

	<u>White</u>	<u>Coloured</u>	<u>Asian</u>	<u>Black</u>
Percentage increase	17,05	56,95	55,40	88,96
Annual growth-rate	0,39	1,13	1,11	1,60

For purposes of comparison the two different projections, namely that of DOS and that of the HSRC in Table 1, are indicated in Appendix A.

The estimated percentage each population group is and will form of the total population, is as follows:

TABLE 1: PERCENTAGE DIVISION OF THE POPULATION

YEAR	TOTAL POPULATION	WHITE	COLOURED	ASIAN	BLACK
1980	27 319 980	16,46	9,29	2,98	71,27
2000	38 404 800	13,24	8,99	2,83	75,01
2020	47 304 870	11,13	8,42	2,67	77,78

4. White migration decreased to such an extent in recent years that it was not taken into account in the population projections. According to the preliminary figures of the 1980 census, there were 4 453 000 Whites, 2 554 000 Coloureds 795 000 Indians and 15 970 000 Blacks (excluding the independent Black states). Prof. J.L. Sadie is of the opinion that the Black population has been underestimated and that the high projection of the HSRC must be accepted as a medium one.

The decrease in the birth-rate can be seen clearly in the case of the Whites, Coloureds and Asians.

The population projections are indicated in Figure 1, Appendix B and the projected average number of births for five-year periods are indicated in Table 2 Appendix C.

## 2.1 POPULATION GROWTH AND MIGRATION

### 2.1.1 Introduction

Population migrations have far-reaching implications for the provision of education facilities. In the past population migrations were not given the necessary consideration when localities and sizes of schools were determined. Socio-economic forces, the greater mobility urban Blacks for instance, have achieved in moving from one administration area to another without violating rights governed by Section 10, relaxation of influx control measures, phasing out of work reservation etc. will in future promote even greater mobility. Population migrations must therefore receive the necessary attention in future planning of education facilities. The 1980-census, contains for the first time, data which make a detailed analysis of population migration possible. It is expected that the data will, however, only be available in April 1982.<sup>5)</sup> Migrations have therefore been analyzed according to an adapted magisterial district basis for the period 1970-80. This macro analysis, however, indicates important trends that can serve as general guidelines for the planning of education facilities.

In the interpretation of this analysis the following must be taken into consideration:

- (1) These are preliminary data and are only available for the total population according to racial group. A breakdown of data according to urban and rural on a comparative basis is not available at this stage.

---

Questions regarding place of birth and where persons resided on 6 May 1975 were included in the 1980-sensus and this makes detail analysis possible.

- (2) Consolidation of land of the national states and re-establishment as, for instance, in East London, has a definite influence, especially on the Black population.
- (3) Transkei, Bophuthatswana and Venda are excluded.

The Unit for Research of the Future of the University of Stellenbosch (1980) stated quite correctly: *"Owing to the migration of the people and the changing of political and administrative borders, which in some cases resulted in artificially high growth-rates market researchers and planners will have to be exceedingly careful when they wish to compare the 1970 and 1980 census results:"*

### 2.1.2 Migration according to province

The migration pattern is dominated by two characteristics, namely a move to the north and north-east and greater concentrations of especially Whites in the large metropolitan areas.

The population's migration to the north is reflected in the fact that the Cape Province had the largest percentage (36,7%) in 1936 of the entire population and 39,4% of the Whites, but that only 23,5% of the total population and 27,8% of the Whites lived in this province by 1980 (see Table 2). Transvaal and Natal constantly increased their share of the total population at the expense of the Orange Free State and the Cape Province. Natal experienced an increase of 31,3% as against an increase of 26,1% of the total population of the RSA in the period 1970-1980, whilst areas in the Transvaal with 29,0%, also showed an increase above the mean for the country. The Cape Province (19,7%) and the Orange Free State (16,9%) lagged, relatively speaking further and further behind the other provinces.

TABLE 2: POPULATION ACCORDING TO PROVINCE: 1980

Province		Whites	Coloureds	Asians	Blacks	Total
Cape	: Number	1 213 518	2 194 796	27 704	2 107 480	5 543 498
	%	(27,81)	(85,93)	(3,49)	(13,26)	(23,48)
Natal	: Number	560 414	89 641	654 922	4 418 238	5 723 215
	%	(12,84)	(3,51)	(82,42)	(27,80)	(24,25)
Transvaal	: Number	2 278 546	217 805	112 013	7 741 981	10 350 345
	%	(52,21)	(8,53)	(14,10)	(48,71)	(43,85)
OFS	: Number	311 581	51 829	0	1 624 883	1 988 293
	%	(7,14)	(2,03)	(-)	(10,22)	(8,42)
TOTAL	: Number	4 364 059	2 554 071	794 639	15 892 582	23 605 351
	%	(100,0)	(100,0)	(100,0)	(100,0)	(100,0)

As far as the absolute numbers of the total population are concerned, 57 districts in the Cape Province and 21 in the Orange Free State lost population, while only 19 districts in the Transvaal and 17 in Natal showed a decrease in the total population (Table 3).

TABLE 3: NUMBER OF MAGISTERIAL DISTRICTS WITH ABSOLUTE INCREASES AND DECREASES IN POPULATION BETWEEN 1970 AND 1980 (PER POPULATION GROUP)

Province	Category	Number of districts				Total
		White	Coloured	Asian	Black	
CAPE	Increases	29	77	51	48	61
	Decreases	89	40	27	70	57
NATAL	Increases	29	36	27	43	47
	Decreases	35	27	31	21	17
TRANSVAAL	Increases	50	68	44	62	65
	Decreases	34	14	30	22	19
OFS	Increases	12	38	-	32	29
	Decreases	38	12	-	18	21
TOTAL	Increases	120	219	122	185	202
	Decreases	196	93	88	131	114

### 2.1.3 Growth in the national states

Border changes, consolidation, resettlement and the possibility that an under-enumeration might have occurred in 1970 are responsible for the abnormally high increases in the population in the national states during the period 1970-1980. As against an average growth of 29,5% of the total Black population,

the national states experienced an average growth of 65,8% in the period between censuses. Qwa Qwa (512,1%), Kwa Ndebele (412,0%) and KaNgwane (201,5%) are especially worth mentioning in this regard. (Table 4).

#### 2.1.4 Growth according to magisterial districts: 1970-1980

The Perloff shift technique has been used in order to obtain an overall view of the migration of the population. This technique is based on the principle that the population of each district is expected to grow at the same rate as that of the country as a whole. The deviation from this expected growth indicates a relative growth (gain) or decrease (loss) in population. According to this, the percentual contribution to the total relative growth or decrease of the population for all districts, is determined. This provides the key for comparing different districts with one another. A magisterial district may consequently experience an increase in absolute numbers between two censuses, but be below the mean for the country and therefore lag behind. As far as the total population is concerned, Johannesburg did show an increase of 8 638 persons, but the growth should have been much higher and therefore it is one of the districts with the largest relative decrease in population.

TABLE 4: TOTAL GROWTH ACCORDING TO NATIONAL STATE (1970-1980)

State	White	Coloured	Asian	Black	Total
Ciskei	-55,06 %	-21,20 %	-57,14 %	76,44 %	73,82 %
KwaZulu	-53,25 %	-14,30 %	-21,18 %	52,72 %	52,11 %
Gazankulu	60,54 %	402,04 %	-75,00 %	71,72 %	71,76 %
Lebowa	-38,36%	110,08 %	-27,91 %	60,83 %	60,34 %
QwaQwa	40,82 %	+-	-	514,51 %	512,08 %
KaNgwane	-81,22 %	570,00 %	+-	204,12 %	201,56 %
KwaNdebele	-74,47 %	20,00	140,00	414,96 %	412,03 %
TOTAL	-44,69 %	-11,34%	-21,20 %	66,57 %	65,80 %

+ No population: 1970

(a) The total population

In Figure 2 Appendix D indicating the migratory gain or loss of the entire population, the earlier statement that the South African population is migrating in a northern and north-easterly direction is emphasized. The following ten districts have experienced the most rapid growth, relatively speaking, and were responsible for more than 40% of the migration gains: Mdutjana, Witsieshoek, Kempton Park, Madadeni, Wynberg, Eerstehoek, Embumbulu, Vanderbijlpark, Mdantsane and Sekhukhunealand. Districts which experienced the highest loss in the migration were; in sequence Durban, Johannesburg, Cape Town, East London, Krugersdorp, Pilgrim's Rest and Pretoria.

(b) The Whites

The White population experienced absolute decreases in 196 magisterial districts, while 120 districts experienced increases. Great decreases were experienced in 89 districts in the Cape and 38 districts in the Orange Free State. More than 53 % of all migratory gains were absorbed by the PWV area and the South-Western Cape, on approximately 2 % of the area of the land. Depopulation of the rural areas indicated by Smit (1973) is still taking place in especially the central Karoo, Southern Free State, Northern and North-Western Transvaal.

Figure 3 Appendix E indicates the relative migratory gains and losses. Ten districts with the highest relative migratory gains are responsible for almost 60 % of the total migratory gains namely Kempton Park, Bellville, Alberton, Pinetown, Randburg, Boksburg, Pretoria, Newcastle, Hoëveldrif and Roodepoort. The number of Whites increased at a relatively slow rate in the following districts and therefore they lagged furthest behind in respect of the average for the country: Johannesburg, Durban, Port Elizabeth, East London, Cape Town, Krugersdorp, Germiston and Westonaria. As in the case of the great cities of the Western world, the Whites are also moving out of the central parts of the cities to the border areas. A considerable degree of intra-urban migration is, for instance, being observed in Johannesburg and Cape Town and this should be given serious attention in planning. (See, in this connection, Zietsman, 1980; Scheepers, 1973.) The population of older residential quarters in bigger urban areas is becoming older so that the number of children of school-age is decreasing. The age profile of the population of residential quarters

should be taken into consideration when school facilities are planned

(c) The Coloured people

In terms of absolute numbers the Coloured people decreased in 40 districts of the Cape province, especially the Karoo and the North-West Cape. The South-Western Cape (especially Wynberg, Kuils River and Bellville) experienced the greatest in-migration of Coloureds. It is noticeable that 68 districts in the Transvaal, 38 in the Orange Free State and 36 in Natal experienced absolute increases of Coloureds.

Figure 4, Appendix F shows the relative migratory gains and losses. The ten magisterial districts with the largest relative increases are Wynberg (34,3 %) Kuils River (8,4 %), Bellville (6,9 %) Kimberley (4,1 %) Inanda, Alberton, Malmesbury, Uitenhage, Vredenburg and Randfontein. The magisterial districts with the greatest relative decreases are Cape Town, Durban, Port Elizabeth, Graaff-Reinet, Beaufort-West, Calvinia, Stellenbosch, Germiston, Riversdale and Krugersdorp. It is clear that the Coloured population is very mobile and therefore accurate demographic analyses must be made before facilities are provided, especially in the rural parts of the Cape Province. The decrease in the birth-rate must also be taken into consideration.

(d) The Asians

The Asian population provided evidence of absolute decreases in 88 magisterial districts, while 122 districts experienced absolute increases. Figure 5 Appendix G shows the relative migratory gains and losses. The three districts Inanda, Pinetown and Pietermaritzburg absorbed more than 80% of the relative increases of the Asians. Other districts that experienced relatively great increases were Benoni, Johannesburg, and Empumalanga. Relative decreases occurred especially in districts such as Durban, Lower Tugela, Vulindlela, Kwa Mapumulu and Umzinto.

(e) The Black population

It has already been indicated that very rapid increases in the number of Blacks occurred in the national states. The Black population indicated absolute increases in 185 magisterial districts and absolute decreases in 131 districts.



Figure 6 Appendix H shows the relative migratory gains and losses. The districts with the greatest relative increases are Mdutjana, Witsieshoek, Madadeni, Eerstehoek, Kempton Park, Embumbulu, Vanderbijlpark, Mdantsane, Sekhukhuneland and Zwelitsha. Districts which experienced relatively big decreases in Black population figures were Durban, East London, Krugersdorp, Pilgrim's Rest, Middelburg (Tvl), Bloemfontein, Pretoria, Vryheid, Soutpansberg and Randburg.

Resettlement schemes, planning of urban areas (that will require urgent attention during the next few years) and consolidation of land must be taken into consideration when education facilities are planned in the case of the Black population.

As from January 1968 all family housing in Black residential quarters situated near national states was frozen. Family housing thereafter occurred mostly in nearby homeland towns. After 1976 these restrictions were lifted, and large-scale housing projects were launched in Black residential quarters to eliminate the backlog. It is expected to have a great influence on the number of children. The policy of providing secondary education mainly in national states, has also been changed and this will affect the number of children of school-age in Black residential quarters. The South-Western Cape still remains a preferential area for Coloured labour and Black men are mainly allowed to enter the area as migratory labourers. The influx to the area and the development of residential quarters to house the squatters of, for instance, Kruispad, will affect the population composition of the Blacks drastically and will possibly affect the number of children.

NB. Information on each magisterial district is available from the HSRC and can be supplied on request.

### 3 EDUCATION

#### 3.1 INTRODUCTION

In order to arrive at reasonably reliable projections of numbers of pupils, certain demographic data are indispensable. The most important of these are population projections according to age and birth-rate. Mortality figures have been ignored in the projections, because they would probably only have a slight effect on the projected figures.

Research in education encounters many problems because education statistics are so unreliable. When different sources such as the annual reports of the education departments are compared with the education statistics published by DOS, they differ in respect of pupils and staff. This of course makes projections more difficult.

#### 3.2 PROJECTIONS OF PUPILS AND STAFF OF ORDINARY SCHOOLS<sup>6)</sup>

According to comments received from various organizations, most problem areas in education are found at the ordinary school level. In order to find solutions for these problems, a clear image of primary and secondary education of all population groups is essential. Historical data for the period 1967-1978 were therefore used as the basis for the projections of numbers of pupils and staff to 2020.

The population projections of the HSRC<sup>7)</sup> indicate the population according to age categories. The population in the age group 6 to 18 was extracted by means of interpolation. The total number of pupils was expressed as a percentage of the population between the ages 6 to 18 for the period 1970 to 1978. This series of percentages was projected with the aid of mathematical curve fitting up to the year 2020. The projected percentages were then

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6 Van Niekerk, C. and Bezuidenhout, D.J.: Data on the numbers of pupils and teachers for all population groups with projections up to the year 2020.

7 Van Tonder, J.L. and Mostert, W.P. Op. cit.

applied to the projected population in the age group 6 to 18 to find the projected number of pupils and both high and low projections were made (See Figure 7 Appendix J)

The procedure outlined in the above paragraph was followed to project the number of secondary pupils. In this case, however the 13 to 18 age group of the population was dealt with. The projected number of secondary pupils was deducted from the projected total number of pupils in order to find the number of primary pupils. The effect of the decrease in the birth-rate is clearly noticeable in some and especially in the White population group. In this case it is possible to refer to it as a trend projection.

The point of departure in the investigation into education is the desire to treat all population groups equally, in other words the realization of parity in education. With a view to this, further projections of primary and secondary pupils were made and deduced from the projections of the total number of pupils by means of supposition (with a view to parity) in respect of the ratio of secondary pupils to the total number of pupils. In the case of the Whites it was assumed that the ratio had stabilized at 0,365 or 36,50 % of the total number of pupils, whereas logistic curves with a saturation value of 0,365 were accepted as the expected future trend in the other cases. This method provides a parity projection.

In table 5 the extrapolated ratio is shown on a percentage basis for the different population groups, if the ideal of parity in 2020 is to be realised.

TABLE 5: RATIO OF SECONDARY PUPILS TO TOTAL NUMBER OF PUPILS

Year	Whites %	Coloureds %	Asians %	Blacks %
1980	36,50	17,45	30,09	15,25
1990	36,50	23,89	34,93	21,63
2000	36,50	29,08	36,16	27,26
2010	36,50	32,50	36,43	31,28
2020	36,50	34,45	36,48	33,72

If factors such as the present backlog in education of certain Non-White populations, the limited funds, inadequate accommodation and especially

the shortage of teachers are taken into consideration, it is very doubtful whether parity can be achieved within a mere 40 years. In the case of the Non-White population groups the trend projection therefore, on the whole yields figures which are lower than the parity projection shows. Nevertheless, the comparison of the two projections is very valuable, because it indicates, by means of figures, to what extent the passage from primary to secondary levels must be effected in the case of the Non-White pupils to achieve approximate parity in 2020.

Table 3 Appendix K which is attached in respect of the four population groups shows both the trend as well as the parity projections of secondary pupils, and in both cases high and low projections are provided.

Owing to the sharp decline in the number of pupils on account of decreasing birth-rate the projection of teaching staff is based on a determination of needs rather than on an estimate of present trends. To achieve this certain suppositions had to be made, as will be indicated later on in respect of the expected number of pupils per teacher, the so-called pupil density.

### 3.2.1 Projections of White pupils

Table 4, Appendix L reveals the number of White pupils in provincial, provincially-aided and private schools, classified according to primary and secondary level, for the period 1967 to 1978, with projections up to 2020 according to the parity method. Owing to the fact that Std 5 is usually still linked with the primary school, the pupils in this standard have been included in the figures for primary school pupils.

According to Table 4 Appendix L it is clear that the supposition that the percentage of White secondary school pupils has stabilized at approximately 36,50 is justified, because both the trend and the parity methods correlate to a large extent for the high and the low projections.

All the projections for both the primary and the secondary pupils provide evidence of a turning-point in 1985 and after that a gradual levelling off in pupil numbers. According to the trend projection, there will be 372 073 White secondary pupils in 1985 as against the 357 247 secondary pupils according to the parity projection (in both cases reference is made to the

low projections). By the year 2020 the trend and the parity projections for secondary school pupils will amount to 283 092 and 273 538 respectively.

The high and the low projections according to the parity method are expressed in Figure 8, Appendix M. If the trend projection is expressed graphically it would reveal the same sharp decline in pupils numbers. The implications of the declining numbers of pupils in so far as staff and accommodation are affected during the nineties and thereafter are obvious.

### 3.2.2 Projections of Coloured pupils

Table 5 Appendix N reveals the actual and the expected number of primary and secondary Coloured pupils, calculated according to the parity method. High and low projections are once again provided. According to the table, the total number of Coloured pupils will increase from 421 319 in 1967 to 827 856 in 2000 (i.e. almost double) and after that this number will decrease to 681 241 in 2020 owing to the decline in the birth-rate of the Coloureds.

The ratio of primary to secondary pupils is important because it entails important financial implications for education. The Work Committee: Education financing indicated that the unit cost increases in accordance with the higher educational levels, and that it for instance costs much more to train a secondary school pupil than a primary school one. In 1967 only 10 % of the Coloured pupils were in the secondary section (42 142); therefore, according to the parity method the percentage will have to rise to 34,45 % in 2020, which will represent 234 688 secondary school pupils. According to the trend method it is expected that there will only be 208 726 secondary school pupils in 2020. The flow from the primary to the secondary section will have to increase considerably if there is to be any semblance of parity.

The high and the low projections according to the parity method are indicated in Figure 9 Appendix O.

### 3.2.3 Projections of Asian pupils

The comments made in respect of the Coloured pupils' projections are also applicable to Asian pupils, together with the interesting phenomenon that the Asian pupils, of all the Non-White population groups, have come closest

to the White standard of education.

According to Table 6 Appendix P the total number of Asian pupils will increase from 155 504 in 1967 to 244 594 in 1990, i.e. by 57,29 %. After that the number of pupils will decline to 208 910 in 2020, which approximately agrees with the total number of Asian pupils in 1978. This decline represents 14,59 %.

Of the total number of Asian pupils in 1970, namely 162 913, 24,32 % (39 615) were in the secondary section. In order to reach parity with the White percentage of pupils in 2020, the number of Asian secondary school pupils will have to rise to 76 210 which will then represent 36,48 % of the total number of Asian pupils. According to the trend method it is expected that there will be 76 140 pupils and this approximately corresponds to the number according to the parity method.

The high and the low projections according to the parity method are given in Figure 10, Appendix Q.

#### 3.2.4 Projections of Black pupils\*

Table 7 Appendix R shows the actual and the expected number of Black pupils, divided according to primary and secondary level (parity method). The pupils of the three independent Black states are included because the population projections of the HSRC on which the projections of numbers of pupils are based, also include the independent Black states.

The total number of Black pupils increased from 2 163 952 in 1967 to 7 534 628 in 2010, i.e. by 248,19 per cent and then there is a slight decline afterwards to 7 362 952 in 2020, i.e. by only 2,29 %.

In 1970 only 9,42 % of all Black pupils (257 929) were in the secondary section. In order to reach approximate parity with the percentage of White pupils in 2020, the number of Black pupils will have to increase to 2 484 514 which will represent 33,72 % of the total number of Blacks pupils.

According to the trend method it is expected that there will, however,

\* According to Prof. J.L. Sadie the high projection of the HSRC for Blacks must be accepted as the median projection and this will, of course, also apply to Black pupils.

by only 2 050 298 secondary school pupils at school in 2020. It therefore appears to be a hopeless task to stimulate the flow of Black pupils from the primary to the secondary section to such an extent that the ideal of parity will be realized in 2020. The high and the low projections according to the parity method appear in Figure 11, Appendix S.

### 3.3 CUMULATIVE STANDARD DISTRIBUTION OF PUPILS

Certain deductions can be made from Table 8 Appendix T in respect of the standard distribution of the different population groups. It is clear according to the numbers and the percentages, that the Black and Coloured pupils are concentrated in the lower standards. So for instance 10,14 % of the White pupils in 1978 were in Grade 1 as against 16,48 % and 19,92 % respectively in the case of Coloured and Black pupils. More than half of the total number of Black pupils had not yet reached Std 2, whereas more than three quarters (79,34 %) of the Black pupils were in the primary school.\* The Coloureds were approximately in the same position as the Blacks, while the pupil distribution of Asian pupils was more or less the same as that of the Whites.

### 3.4 CUMULATIVE AGE DISTRIBUTION OF PUPILS

It can be accepted that pupils should normally complete the primary school career at the age of twelve years. The percentages of pupils of the four population groups who were under twelve years of age in 1978, were as follows:

Whites	96,83 %
Coloureds	81,60 %
Asians	91,43 %
Blacks	72,97 %

Under normal circumstances a pupil ought to finish his schooling at the age of 18. In the case of the Whites only 0,40 % of the pupils in 1978 were over 18 years old in comparison with 18,67 % of the Black pupils.

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\* Owing to the large number of Std 10 candidates, the Department of Education and Training decided that only full-time pupils may sit for the examination in November and the part-time candidates in June. According to the chief examination officer there were already 54 000 candidates in November 1980 of whom approximately 40 000 sat for the examination, owing to the school boycotts. There were already 97 000 candidates who enrolled for the Std 10 examination in June 1981.

### 3.5 REPORT ON TEACHERS IN ORDINARY SCHOOLS

#### 3.5.1 Number of teachers

Table 9 Appendix U reflects the number of teachers for the four population groups during the period 1968 to 1978. From 1970 to 1978 the number of teachers in ordinary schools increased as follows to keep pace with the increase of pupils:

Whites	:	Increased by an average of 1,68 % per year from 41 337 to 47 233
Coloureds	:	Increased by an average of 5,06 % per year from 16 483 to 24 461
Asians	:	Increased by an average of 2,92 % per year from 6 057 to 7 626
Blacks	:	Increased by an average of 8,43 % per year from 33 528 to 64 049

#### 3.5.2 Number of pupils per teacher

The number of pupils per teacher (pupil density) determines the number of teachers required and this has financial implications in the sense that teachers' salaries take up between 70 % and 80 % of the total education expenditure.

In 1978 the pupil density for the four population groups was as follows:

White	:	20,16
Coloured	:	29,52
Asian	:	27,21
Black:		
White areas:		46,76
National states		49,92

It can be accepted that the White pupil density figure has stabilized at 20. If the ideal is parity by 2020 and the same pupil density is accepted for all population groups as that for the Whites, the following number of teachers will be required for the four population groups on the basis of the projected numbers of pupils:



<u>Population group</u>	<u>Teachers in 2020</u>	<u>Mean growth-rate per year (1980-2020)</u>
White	37 471 teachers	-0,65
Coloured	34 062 teachers	0,73
Asian	10 446 teachers	0,64
Black	368 107 teachers	3,40

See Table 10 Appendix V

### 3.5.3 Teachers' qualifications

Important factors in education are the qualifications and years experience of the teachers, because they have financial implications. Table 11 Appendix W reveals the qualifications of teachers of the four population groups in 1978. The relatively low qualifications of many Coloured and Black teachers cause concern. The qualifications of teachers who are in possession of a teachers' certificate or diploma, are represented in Figure 12, Appendix X.

## 3.6 POST-SCHOOL AND TERTIARY EDUCATION<sup>8)</sup>

### 3.6.1 Introduction

The educational institutions treated under this heading are the technical institutes, technical colleges, technikons, teachers' training colleges and the universities. For the sake of conciseness the three institutions mentioned first will be dealt with together because of the similarity as regards the nature of the training they provide.

### 3.6.2 Technical institutes, technical colleges and technikons

The three educational institutions especially responsible for providing vocational training, have much in common, apart from the fact that technical colleges are government institutions, whereas the other two are state-aided educational institutions. The order in which they appear in the heading, indicates the stages of development. One important point of difference is that technikons provide training exclusively at post-matriculation level, for instance to technicians, whereas the other two

8 Van Niekerk, C., Bezuidenhout, D.J. and Hamman, P.J.T. Statistiek ten opsigte van na-skoolse en tersiêre opleiding, HSRC report 004/4, 1981.

offer courses at pre-matriculation level, for instance for apprentices.

The students can be grouped into three categories, namely full-time, part-time and occasional students. They attend classes in different ways, namely for a full year, a semester, a trimester, a quarter, part-time, after hours or short courses of a few lectures or demonstrations.

It is very difficult to make a projection in the case of such a large variety of students and duration of class attendance. The task would be easier if there were an acceptable formula for converting all students to full-time students, but such formulae are very unsatisfactory. Under these circumstances historical data of number of students are used for the period 1969 to 1978 and no projections are made.

There are 7 technikons and one providing correspondence courses for the Whites, one each for the Coloureds and Asians and two for the Blacks. In 1980 there were 28 technical colleges and 37 technical institutes for Whites, and five technical colleges and three technical institutes for Coloureds. The Blacks have two technical colleges and sixteen technical institutes. There are no separate technical colleges or institutes for the Asians, and this work is also done by the M.L. Sultan Technikon.

Table 12 Appendix Y reveals the number of full-time, part-time and occasional students at the White technikons, technical colleges and technical institutes for the period 1969 to 1978. In 1978 there were all together 44 744 White students at technikons, 37 890 at technical colleges and 24 800 at technical institutes. The three Non-White population groups are on the whole in an inferior position as far as technical and vocational training are concerned. There were only 1 356 Coloured students at the technikon in 1980, while there were all together 3 733 students at technical colleges and institutes in 1977. In 1978 there were all together 6 827 students at the M.L. Sultan Technikon while the 16 technical institutes for Blacks had 233 female and 2 636 male students.

### 3.6.3 Teachers' training colleges

Only historical data are provided for teachers' training colleges. It is difficult to provide projections of pupil teachers, because the inflow to

the colleges is determined by the number of teachers required. As a result of a decreasing birth-rate and a consequent decrease in the number of pupils, the need for teachers will also gradually decline if the figure for pupil density remains constant. In the case of population groups with a present high density figure, as for instance in the case of Black education, the need for teachers will continue to grow to the extent that the numbers of pupils increase and as the pupil density figure declines.

In 1980 the following numbers of teachers' training colleges existed for the different population groups:

Whites	:	20
Coloureds	:	14
Asians	:	2
Blacks	:	
White areas	:	7
National states	:	<u>30</u>
Total		73

In the report to the Work Committee referred to in the footnote at paragraph 3.6, separate tables of the number of teachers for the four population groups are given according to sex. Table 13 Appendix Z shows only the total number of pupil teachers at the 73 teachers' training colleges.

### 3.6.4 Universities

#### 3.6.4.1 Residential universities for Whites

There are different factors which make it difficult to make a projection of university students. Of these the following are the most important ones

- (a) The declining birth-rate
- (b) The possibility that certain diploma courses at universities may be transferred to the technikons.
- (c) The fact that the subsidies to universities are also based on the progress students make.

(d) The ever-rising cost of study at a university.

The method that was employed to project the number of students at universities is explained in report no. 004/4. Table 14 Appendix AA shows the actual and projected number of White students. It is expected that there will be 18,98 students per thousand of the White population at universities in 2020.

3.6.4.2 Coloured students at residential universities

According to Table 15, Appendix BB the Coloured students at the University of the Western Cape and at certain White universities will increase from 982 in 1968 to 12 020 in 2020, i.e. with 1 124 %. Though there was only 0,56 per thousand of the Coloured population at university in 1970, it is expected that the figure will grow to 3,02 per thousand in 2020.

In order to obtain an indication of the number of Coloured students in 2020 in order to achieve parity, the number of White students can be expressed per thousand of the population in the age group 20 to 24 and the same figure can be applied to the Coloured population in that age group. If this is done, it can be expected that there will be 90 542 Coloured students in 2020.

3.6.4.3 Asian students at residential universities

Table 16 Appendix CC reveals the actual and the expected number of Asian students at the Durban-Westville University and at certain White residential universities. According to the projection the number of Asian students will increase from 2130 in 1968 to 14 066 in 2020, i.e. by 560 %. Though there were only 3,84 per thousand of the Asian population at university in 1970, the number will grow to 11,13 per thousand in 2020. If the same ratio of White students to White population, namely 18,98 is applied to the Asians with a view to parity, there is a possibility of 27 342 Asian students at university in 2020.

3.6.4.4 Black students at residential universities

The method used in the case of the Whites, Coloureds and Asians for the

projection of student numbers, cannot be applied in the case of the Black students, because no birth-rate figures are available for Blacks. Two methods of projection were applied in Table 17 Appendix DD, which yielded the following results:

- (a) a linear extrapolation which resulted in a total of 25 589 students in 2020
- (b) a linear extrapolation of the number of students per thousand of the population in the age group 20 to 24 years which was converted to the number of students and according to this, the total number of students will be 47 146 in 2020.

The percentage increase in the number of students per thousand of the population in the age group 20 to 24 years from 1978 to 2020 for the four population groups is as follows:

Whites	:	39,6 %
Coloures	:	153,2 %
Asians	:	109,1 %
Blacks	:	413,8 %

If the number of Black students per thousand of the population in the age group 20 to 24 years is equated with that of the Coloures in 2020, it would imply a total of 123 089 Black students. Corresponding calculations to achieve parity with Asians or Whites, yield a figure of 477 208 and 927 590 Black students respectively in the year 2020.

#### 3.6.4.5 University of South Africa

Owing to the fact that the enrolled students of UNISA have a heterogeneous age structure, projections were made by means of extrapolation with a logistic curve. Certain adjustments were necessary in the case of Coloured students. Table 18 Appendix EE reveals that it is expected that there will be 127 071 enrolled students in 2020 at UNISA. Figure 13, Appendix FF reveals the projection of students at residential universities and Figure 14 Appendix GG shows the position at UNISA.

### 3.7 EDUCATION OF THE HANDICAPPED CHILD<sup>9)</sup>

The only basis for projections of pupils with different handicaps is according to the incidence per thousand of the school population. Such reliable figures do not exist in respect of South Africa and more specifically for the different population groups. The only possible solution is to express the number of pupils in the special schools for the handicapped, the Children's Act schools and the centres for mentally handicapped pupils of the Department of National Education per thousand of the ordinary school population and to accept this figure as the incidence figure. The assumption is that all White handicapped pupils are in the schools of DNE which, unfortunately, is not always the case. Through lack of more reliable figures, this method must be used with the proviso that the number of pupils will probably be higher than reflected by the figures in the tables.

The following categories of pupils are dealt with in the report.

Auditory-handicapped : Deaf and hard-of-hearing  
Visually handicapped : Blind and partially sighted  
Physically handicapped  
Neurally handicapped : Cerebral palsy, epileptics, pupils with specific learning impairment Category C\*

#### Autists

Educable mentally handicapped

Pedagogically neglected pupils: Those in need of care (school of industries) and juvenile delinquents (reformatory)

Seeing that there are few facilities for the education of Non-White handicapped pupils, which means that many pupils cannot be admitted to special schools, the same projection method used for the Whites cannot be applied

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9) Van Niekerk C, Bezuidenhout D.J. and Hamman P.J.T., Education for sensory, neurally and mentally handicapped and pedagogically deprived or behaviour deviant pupils. HSRC - Report 004/3 - 1980

\* The categories A & B specific learning impairment are the responsibility of the provincial education departments, while the category C is the responsibility of the Department of National Education

to the Non-Whites. It was assumed that the incidence of the various handicaps of the Non-Whites correspond to those of the Whites, though it is a well-known fact that this is not always the case. Blindness for instance occurs more among Blacks than among Whites.

Two projections were made in respect of the Whites. The projection was first based on the number of pupils in the special schools in 1980, expressed per thousand of the expected number of White pupils. In the second place an attempt was made to make a projection based on the trend as the number of handicapped pupils increase or decrease. The latter method could however not be applied to the Non-Whites, because the published number of handicapped pupils does not reflect the true position. In report 004/3 more details are provided on the number of handicapped pupils. (See footnote at paragraph 3.7).

If the White incidence figure is applied to the three Non-White population groups, with a view to parity, the expected number of handicapped pupils in 2020, is indicated in the following table.

TABLE 6 : PROJECTED NUMBER OF HANDICAPPED PUPILS IN 2020

Handicap	White	Coloured	Asian	Black
Auditory handicapped	850	773	237	8 536
Visually handicapped	398	362	96	3 916
Physically handicapped	552	498	152	5 389
Cerebral-palsied	987	775	275	9 703
Epilepsy	441	401	123	4 336
Specific learning impairment	1 080	982	301	10 616
Autism	46	42	12	456
Mentally handicapped	2 210	2 008	616	21 710
Committed	1 703	1 549	465	16 748

#### 4 MANPOWER

In this part of the report abundant use is made of the research of the Manpower Commissions Report on High-Level Manpower (HLM) in South Africa.<sup>10)</sup> A report of the South African Institute for Manpower Research was also submitted to the Work Committee.<sup>11)</sup> In conclusion certain data which were published in the publication RSA 2000<sup>12)</sup> and which had originally been published by Prof. Sadie and others were incorporated in the report.

The source of manpower is the population and Sadie divides the population into four socio-economic classes, namely the management group (Class I) the higher skilled ones (Class II) the semi-skilled ones (Class III) and the unskilled ones (Class IV).

Class I (management group) or HLM provides the persons who practise as entrepreneurs, bear responsibility, create job opportunities and are responsible for technological development. Of the management group 96 % are Whites. It is also clear that the potential for further employment of Whites at management level has virtually reached an optimum and that the other population groups will more often have to provide HLM to ensure a fair growth-rate for the economy.

The core of the matter that comes to the fore from the report of the Manpower Commission is this:

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10. Republic of South Africa: Department of Manpower Utilization Highlevel Manpower in South Africa, Report 1/80 of the National Manpower Commission
  11. Terblanche, S.S., Van Pletzen, Joyce and Jacobs, J.J. The growth in the Southern African labour force, structural changes in the demand for labour and the supply-demand situation in certain key vocations. HSRC, 1980.
  12. RSA 2000 Vol. 3 (2). HSRC, 1981



*"that South Africa will not be able to realise its development potential and offer all its people an acceptable standard of living if the country persists in trying to recruit its HLM mainly from the White population group; in fact, if we continue to do so, a relative deterioration may be expected in the course of time. It is therefore of the greatest importance that all population groups, also in line with the accepted philosophy of the free market mechanism, should have full and equal opportunities to participate in the development processes to the full extent of their abilities and insight and to benefit accordingly. This also implies an attitude of fairness, justice and, in the words of the Prime Minister, the Honourable P.W. Botha, a "national will" among all population groups to work in this direction."*<sup>13)</sup>

It is generally accepted that the economically active part of the population (the participation figure) falls in the age group 15 to 64. There are, of course, persons over 65 who are still in the labour force. According to the 1979 Manpower survey, the HLM of the RSA in April 1979 came to 468 000 persons in professional, semi-professional and technical vocations, whereas 169 900 persons were employed in managing, executive and administrative posts all together 637 900 persons.

As has already been stated it is especially the managing group who form a very small percentage of the labour force and who have to provide the job opportunities for the great multitude of workers. According to Sadie this means that 81 % of the population of the RSA are in a state of economic dependence, i.e. dependence on the HLM for the creation of job opportunities.

In Table 7 Sadie shows what the numerical strength of the labour force is expected to be in 2000.

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13. Manpower Commissions HLM. op cit p. viii

TABLE 7 PROJECTED LABOUR FORCE 1980 - 2000 ('000)<sup>14)</sup>

POPULATION GROUP	1980				2000			
	M	F	T	%	M	F	T	%
Whites	1 299	636	1 935	18,4	1 574	937	2 511	14,27
Asians	212	60	272	2,6	305	120	425	2,41
Coloureds	652	366	1 018	9,7	1 016	606	1 622	9,22
Blacks	4 854	2 435	7 289	69,3	8 335	4 707	13 042	74,10
<b>TOTAL</b>	<b>7 017</b>	<b>3 497</b>	<b>10 514</b>	<b>100,0</b>	<b>11 230</b>	<b>6 370</b>	<b>17 600</b>	<b>100,00</b>

From an estimated 10 514 000 in 1980 the labour force will, according to estimates, increase by 7 086 000 during the next 20 years to a total of 17 600 000 in 2020 without immigration. This represents an annual increase of 2,62 % compared with 3,05 % during the previous two decades. The growth rate is declining owing to the declining birth-rate. Nevertheless, in the next 20 years job opportunities will have to be created for 7 086 000 more persons at a rate of 1 000 job opportunities a day compared to 2 547 000 persons who entered the labour market during the previous two decades.

Du Pisanie's<sup>15)</sup> classification of the labour force according to industry, also estimates that there will be 17 600 000 in 2020, as can be seen from the following table.

In table 8 the peripheral sector consists of maintenance agriculture in the national states, domestic servants, non-classifiable persons in respect of industrial groups and unemployed ones. It is also clear that the total numbers in the modern sector will virtually increase from 1980 to 2000 and yet there is a chronic shortage in certain fields.

14 Sadie, J.L. Labour force 2000. RSA 2000 3 (2) HSRC, 1981, p.28

15 Du Pisanie, J.A. Ruimtelike verbreding 2000. RSA 2000 2 (2), 1981, p. 49.

**TABLE 8 POPULATION ACCORDING TO INDUSTRY 1980 AND 2000 (ALL POPULATION GROUPS) ('000)**

INDUSTRY	1980	2000
Agriculture in White area	973	780
Mining and brickmaking	725	885
Manufacturing industry	1 238	2 713
Electricity gas and water	95	225
Construction	593	1 430
Commerce and finance	1 102	2 323
Transport and communication	423	875
Government services	876	2 403
Central government	303	487
Provincial administration	217	670
Local authorities	139	390
Black authorities	217	856
Other services excluding domestic servants	237	237
<b>Total: Modern sector</b>	<b>6 262</b>	<b>11 871</b>
Peripheral sector	4 252	5 729
<b>Total: Economically active</b>	<b>10 514</b>	<b>17 600</b>
Not economically active	17 065	25 400
<b>TOTAL</b>	<b>27 579</b>	<b>43 000</b>

According to Terblanche<sup>16)</sup> there is a serious shortage in the so-called technological groups, namely engineers, physical scientists, technicians, artisans and apprentices. At present these posts are mainly filled by Whites. So, for instance, in 1979 99 % of the engineers, 78 % of the physical scientists, 91 % of the technicians and 72 % of the artisans and apprentices were Whites.

In table 9 the demand for technological manpower for 1979 is projected.

The table shows clearly how the technological manpower will have to increase within one short decade to provide for the demands of the economy and this is where the Non-White population groups will have to make an ever-increasing contribution. Unfortunately people, especially the Blacks, prefer to obtain degrees. in the Humanities.

<sup>16</sup> Terblanche, Van Pletzen and Jacobs, *ibid.* p. 24.

TABLE 9 THE DEMAND FOR TECHNOLOGICAL MANPOWER IN 1977 WITH PROJECTIONS FOR 1987

VOCATIONAL GROUP		1977	1987
Engineers	M	16 000	21 900
	F	60	110
Physical scientists	M	8 000	12 100
	F	1 150	2 440
Engineering technicians	M	41 000	60 000
	F	1 290	2 150
Artisans and apprentices	M	287 200	358 000
	F	8 900	12 300
TOTAL	M	352 200	452 000
	F	11 400	17 000

In this report the emphasis will still fall on the HLM and the following table shows the ratio of HLM to total manpower for all four population groups for 1979. In the table farmers, farm labourers and domestic servants are excluded as well as the workers in Transkei and Bophuthatswana. The total for these groups was 4 353 100 and this number is excluded from the HLM.

TABLE 10 THE COMPOSITION OF HLM ACCORDING TO SEX AND POPULATION GROUP - SOUTH AFRICA 1979<sup>17)</sup>

POPULATION GROUP	HLM			TOTAL MANPOWER		
	M	F	T	M	F	T
Whites	332 369	126 419	458 788	1 014 757	564 212	1 578 969
Coloureds	17 902	31 918	49 820	386 928	213 799	600 727
Asians	13 012	7 106	20 188	147 111	59 831	206 942
Blacks	40 486	68 692	109 178	2 496 457	375 951	2 872 408
TOTAL	403 769	234 135	637 904	4 045 253	1213 793	5 259 046

17 Manpower report, *ibid.* p. 14.

The HLM can be divided into the production and the services sector and more than 70 % of the HLM of the country is found in the services sector. The largest single group in the services sector, namely 160 000, were teachers in 1975. Incidentally the White population group constitutes the same percentage, namely 70 % of the total workers' corps according to Table 11. Women constitute 23 % of the total manpower, but actually 37 % of the HLM in South Africa. White men constituted 82 % of the country's male HLM in 1979 compared with 4,4 % with Coloureds, 3,2 % with Asians and 10 % with the Blacks respectively.

HLM implies, inter alia, that the person must have had at least two years post secondary school training. In the Manpower Report it is stated that only 1,3 % of South Africa's almost 11 million workers in 1981 had a degree, 2,2 % had a post Std 10 diploma and only 3,5 % had had formal training higher than Std 10. This means that hardly 10 % of the 11 million workers in 1981 had a Std 10 or higher qualification. Of the White men 47,7 % had Std 10 and higher qualifications, while only 0,8 % of the Blacks had Std 10 and higher qualifications.

*"Almost two thirds of the total manpower (65,5 per cent) will have no formal educational qualification (29,7 per cent) or only education at a primary level (35,8 per cent), and 90 per cent of this group will be Blacks."*

Periodically, surveys of job opportunities and shortages are made by the Department of Manpower Utilization and seeing that this investigation concerns education, it is interesting to determine what the shortage of teaching staff was in 1979.

TABLE 11 MANPOWER SHORTAGE IN EDUCATION

VOCATION	JOB OPPORTUNITY	SHORTAGE	% SHORTAGE
Professor/lecturer	8 039	507	6,3
Lecturer - college	4 108	280	6,8
Subject teacher	4 818	195	4,0
Teacher	171 927	1 165	0,7

With reference to the controversy about the large number of resignations from education, the following quotation from the Manpower Report is illuminating. It refers only to data which appear in the National Register of Natural and Social Scientists:

*"Of the 2 137 male graduates who were teachers in 1973, 1 861 (87 per cent) were still teachers in 1975. This means that 276 (13 per cent) had left the teaching profession between 1973 and 1975. Of these 276 persons, 185 (67 per cent) entered occupations which are related to teaching, for example those of lecturers and inspectors of education, while 91 (33 per cent) persons switched to non-related occupations."*

These data are of course outdated and the number of resignations from education increased sharply in recent times.

The Manpower Commission, inter alia, made the following general recommendation:

*".... that in a country such as South Africa which has a free market economy, the different occupational and employers' associations should give more attention to the identification and solution of their personnel problems instead of looking to the government of assistance."*

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19 Manpower Commissions HLM. op cit. p.46

20 Manpower Commissions HLM. op cit. p.78

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APPENDIX A

TABLE 1 POPULATION PROJECTIONS FOR WHITES, ASIANS AND BLACKS FOR THE PERIOD 1980 TO 2020.

	YEAR	TOTAL	WHITES	COLOUREDS	ASIANS	BLACKS
D of S	1980	28 311 620	4 397 780	2 721 000	828 840	20 364 000
	1985	32 171 430	4 703 170	3 134 000	935 260	23 399 000
	1990	36 446 010	5 012 520	3 612 000	1 045 490	26 776 000
	1995	41 167 180	5 321 420	4 137 000	1 156 760	30 552 000
	2000	46 076 350	5 361 260	4 698 000	1 270 090	34 747 000
	2005	51 917 890	5 942 440	5 297 000	1 384 450	39 294 000
	2010	57 838 720	6 252 130	5 933 000	1 502 590	44 151 000
	2015	64 040 270	6 554 610	6 603 000	1 617 660	49 265 000
2020	70 454 880	6 841 860	7 299 000	1 725 020	54 589 000	
HSRC LOW PROJECTION	1980	27 319 980	4 496 430	2 538 870	813 050	19 471 630
	1985	30 102 210	4 687 490	2 781 290	889 560	21 743 870
	1990	32 930 170	4 834 360	3 028 340	960 240	24 107 050
	1995	35 732 700	4 965 390	3 258 130	1 026 560	26 482 620
	2000	38 431 800	5 085 180	3 453 340	1 086 810	28 806 470
	2005	40 990 310	5 179 070	3 613 920	1 137 620	31 059 700
	2010	43 349 310	5 240 080	3 743 860	1 184 800	33 180 570
	2015	45 472 870	5 268 280	3 870 730	1 226 970	35 106 890
2020	47 304 870	5 263 140	3 984 810	1 263 510	36 793 410	
HSRC HIGH PROJECTION	1980	27 493 790	4 498 510	2 539 080	813 210	19 642 990
	1985	30 518 840	4 705 490	2 793 680	893 650	22 126 020
	1990	33 725 010	4 893 610	3 065 420	973 270	24 792 710
	1995	37 024 140	5 065 370	3 330 300	1 051 580	27 576 890
	2000	40 349 620	5 209 470	3 571 900	1 127 660	30 440 590
	2005	43 667 590	5 313 260	3 785 800	1 198 620	33 369 910
	2010	46 954 080	5 386 910	3 980 330	1 260 980	36 325 860
	2015	50 155 260	5 437 720	4 154 810	1 315 240	39 247 490
2020	53 194 570	5 458 750	4 302 310	1 361 110	42 072 400	

SOURCES

D of S - Department of Statistics. Report 02-06-01 (1976)

HSRC - Human Sciences Research Council. Van Tonder, J.L. and Mostert, W.P.  
Population projections for Southern Africa for the period 1970-2020.

According to Prof. J.L. Sadie the high projection of the HSRC for Black must be accepted as the median projection and this will, of course, also apply to Black pupils.

FIGURE 1 : POPULATION PROJECTIONS FOR THE R.S.A.  
(Independent Black States included)

FIGUUR 1 : BEVOLKINGSPROJEKSIES VIR DIE R.S.A.  
(Onafhanklike Swart State ingesluit)

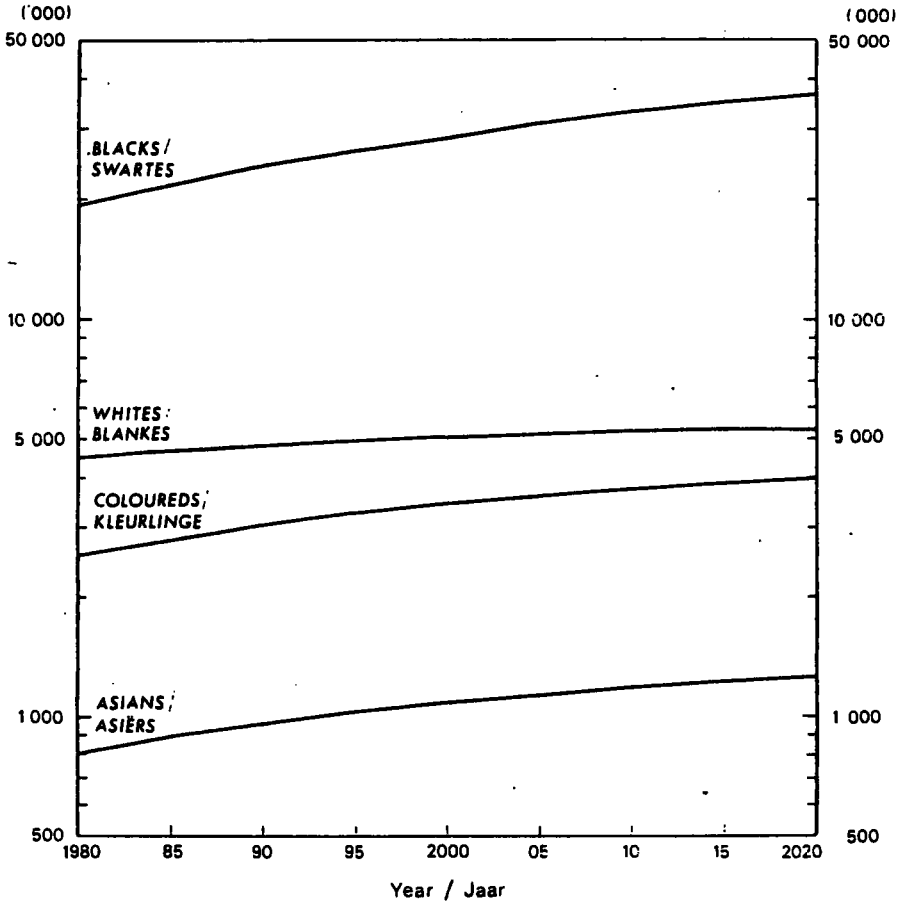


TABLE 2 PROJECTED AVERAGE NUMBER OF BIRTHS FOR FIVE-YEAR PERIODS

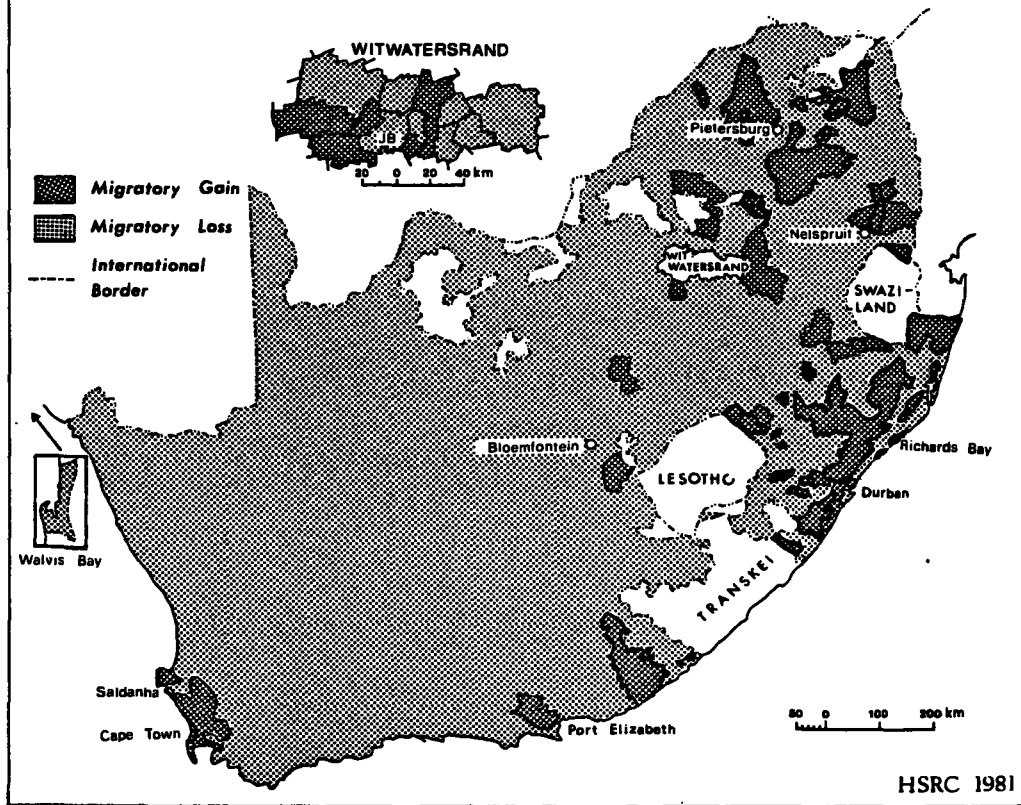
Period	White	Coloured	Asian	Black
1975 - 1979	79 250	73 986	20 956	643 909
1980 - 1984	75 231	76 995	20 706	573 375
1985 - 1989	69 618	73 155	20 085	639 226
1990 - 1994	69 262	75 121	19 743	691 969
1995 - 1999	69 568	68 777	19 045	683 962
2000 - 2004	67 022	62 763	17 878	673 741
2005 - 2009	63 430	57 777	17 759	651 072
2010 - 2014	60 368	59 057	17 621	618 837
2015 - 2019	58 459	58 626	17 222	581 314

SOURCE: HSRC - S 73

# Net Migration of Total Population

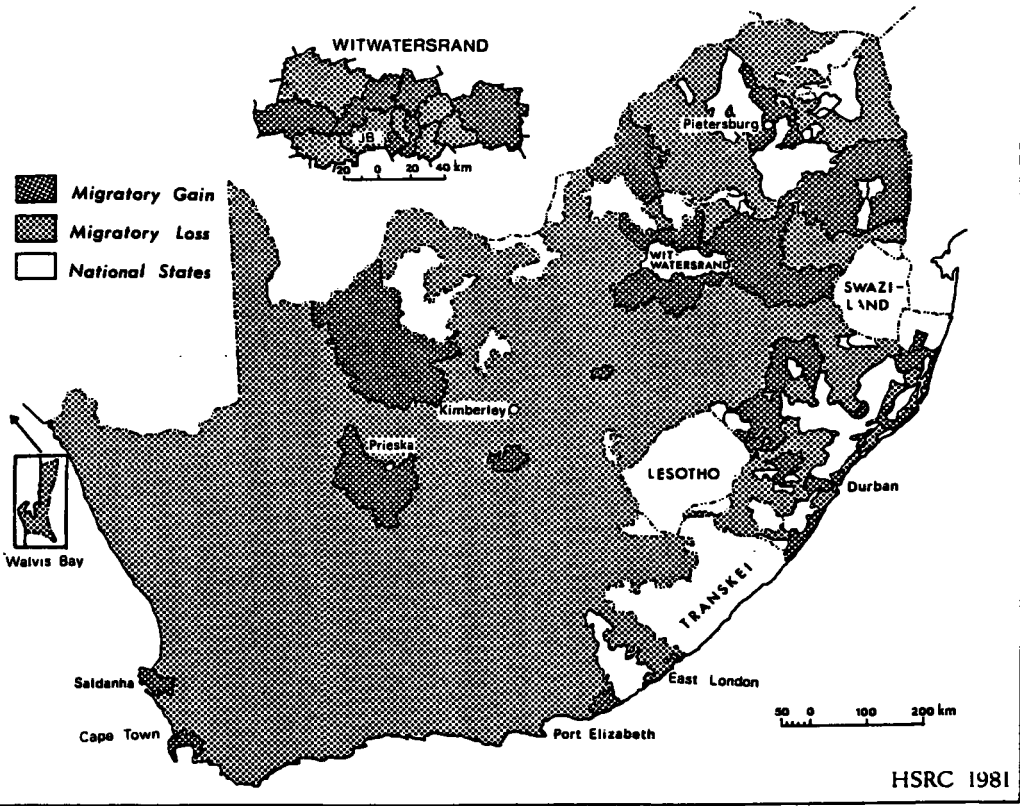
1970 - 1980

2



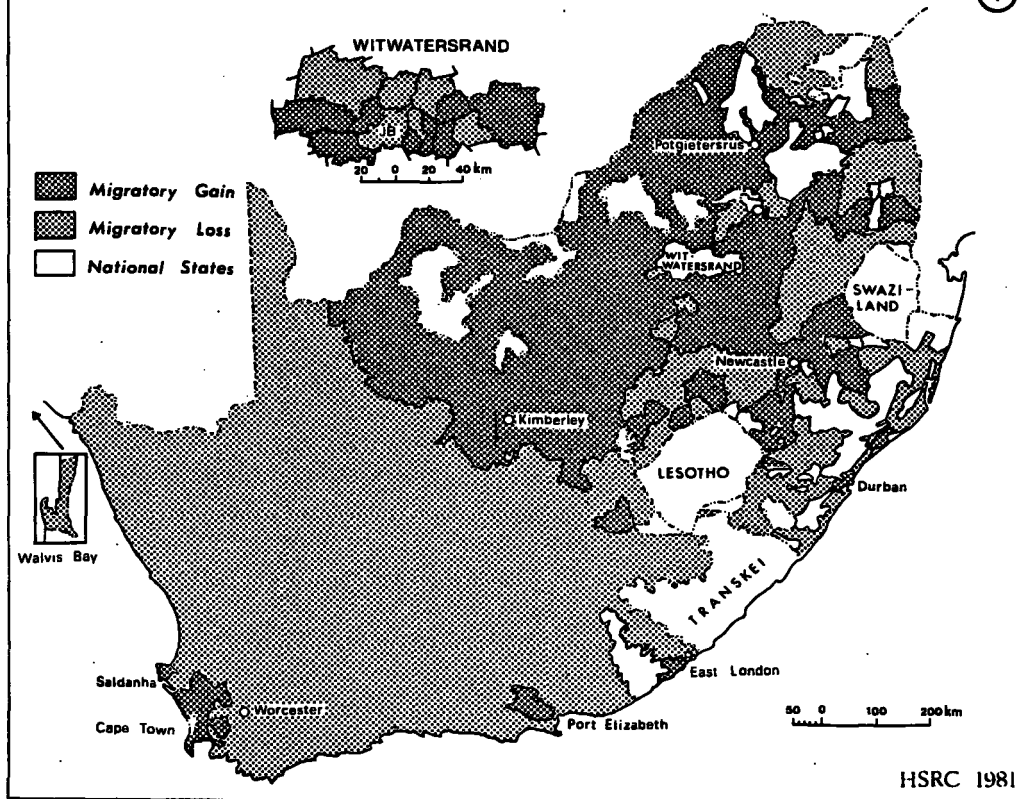
# Net Migration of Total White Population 1970 - 1980

3



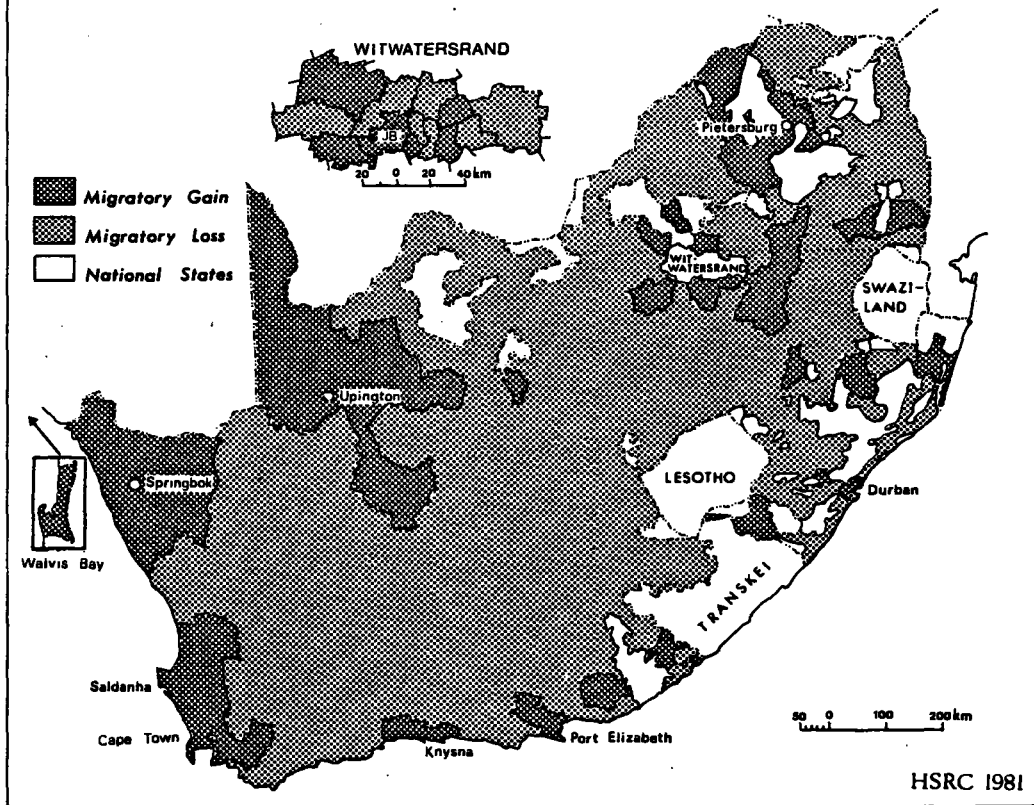
# Net Migration of Total Coloured Population 1970-1980

4



# Net Migration of Total Asian Population 1970 - 1980

1970 - 1980 (5)



# Net Migration of Total Black Population 1970 - 1980 <sup>⑥</sup>

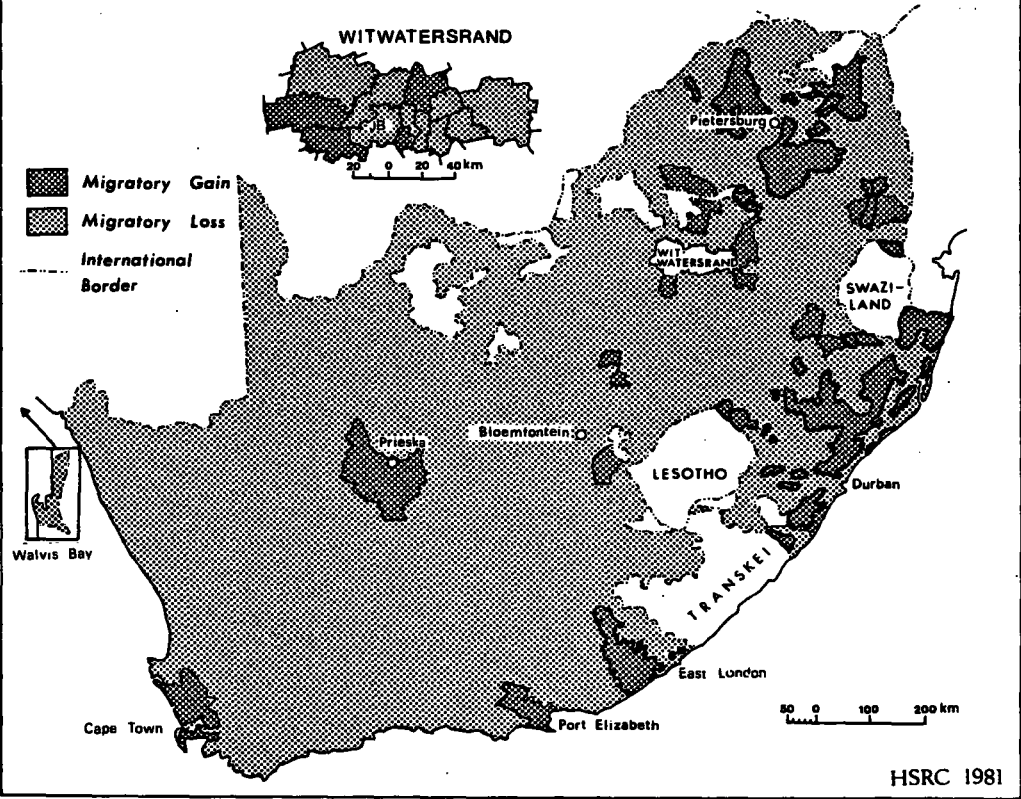
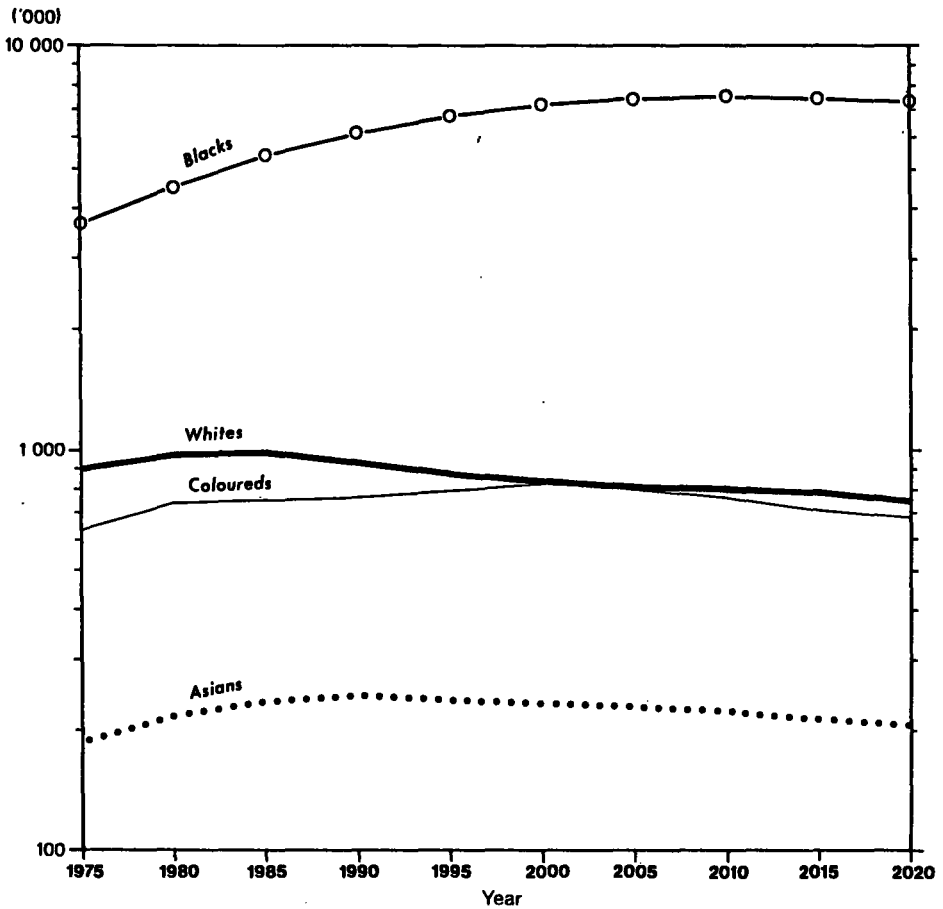




FIGURE 7 : PUPILS IN ORDINARY SCHOOLS (Low Projection)



## APPENDIX K

TABLE 3 PROJECTIONS OF SECONDARY PUPILS IN ORDINARY SCHOOLS

## 1. LOW PROJECTIONS

YEAR	WHITES		COLOUREDS		ASIANS		BLACKS	
	TREND	PARITY	TREND	PARITY	TREND	PARITY	TREND	PARITY
1980	356 648	355 674	134 651	128 951	64 161	65 321	739 612	693 097
85	372 073	357 247	155 111	156 320	75 352	78 493	1 016 126	989 813
90	363 117	342 034	165 461	183 242	86 465	85 437	1 317 064	1 329 459
95	330 912	318 087	182 997	214 041	84 232	84 982	1 571 509	1 663 597
2000	314 118	304 952	208 126	240 741	84 369	84 673	1 786 782	1 962 257
05	298 020	297 764	223 803	251 720	83 351	83 309	1 931 393	2 193 057
10	297 455	294 692	225 382	248 788	82 350	80 667	2 011 076	2 356 832
15	294 911	286 570	217 145	238 781	79 421	78 029	2 047 082	2 453 708
20	283 092	273 538	208 726	234 688	76 140	76 210	2 050 298	2 482 514

## 2. HIGH PROJECTIONS

YEAR	WHITES		COLOUREDS		ASIANS		BLACKS	
	TREND	PARITY	TREND	PARITY	TREND	PARITY	TREND	PARITY
1980	356 654	355 682	134 659	128 957	64 166	65 331	739 612	697 265
85	372 082	357 761	155 114	156 325	75 357	78 501	1 022 610	1 011 013
90	363 682	346 926	165 466	185 355	86 468	86 445	1 352 180	1 389 067
95	336 644	344 938	185 276	221 869	85 332	88 557	1 654 102	1 781 859
2000	335 309	333 912	217 966	257 569	89 047	91 821	1 928 286	2 156 748
05	333 741	329 008	241 950	278 361	91 764	93 921	2 139 608	2 483 002
10	328 259	316 558	251 850	284 628	93 891	94 634	2 298 145	2 760 865
15	312 118	300 061	251 926	284 065	94 409	93 180	2 426 423	2 989 694
20	292 816	286 850	250 886	282 513	92 257	90 079	2 529 290	3 161 602

TABLE 4: WHITE PUPILS 1967 - 2020

YEAR	PRIMARY		SECONDARY		TOTAL	
1967	541 055		268 833		809 888	
1968	547 644		283 786		831 430	
1969	551 565		291 053		842 618	
1970	556 680		297 200		853 880	
1971	560 947		305 074		866 021	
1972	559 775		314 380		874 155	
1973	559 431		324 603		884 034	
1974	563 966		326 084		890 050	
1975	573 627		329 574		903 201	
1976	585 238		336 307		921 545	
1977	592 692		342 638		935 330	
1978	605 630		346 546		952 176	
	<u>LOW</u>	<u>HIGH</u>	<u>LOW</u>	<u>HIGH</u>	<u>LOW</u>	<u>HIGH</u>
1980	612 775	618 789	355 674	355 682	974 449	974 471
1985	621 511	622 407	357 247	357 761	978 758	980 168
1990	595 046	603 556	342 034	346 925	937 080	950 482
1995	553 385	532 701	318 087	344 938	871 472	917 639
2000	530 534	580 915	304 952	333 912	835 486	914 827
2005	518 027	572 383	297 764	329 008	815 791	901 391
2010	512 683	550 725	294 692	316 558	807 375	867 283
2015	498 552	522 024	286 570	300 061	785 122	822 085
2020	475 881	499 041	273 538	286 850	749 419	785 891

SOURCE SANSO 202  
HSRC 1980

FIGURE 8 : PROJECTION OF WHITE PUPILS 1970 - 2020  
(High and Low Projections)

FIGUUR 8 : PROJEKSIE VAN BLANKE LEERLINGE 1970 - 2020  
(Hoë en Lae Projeksies)

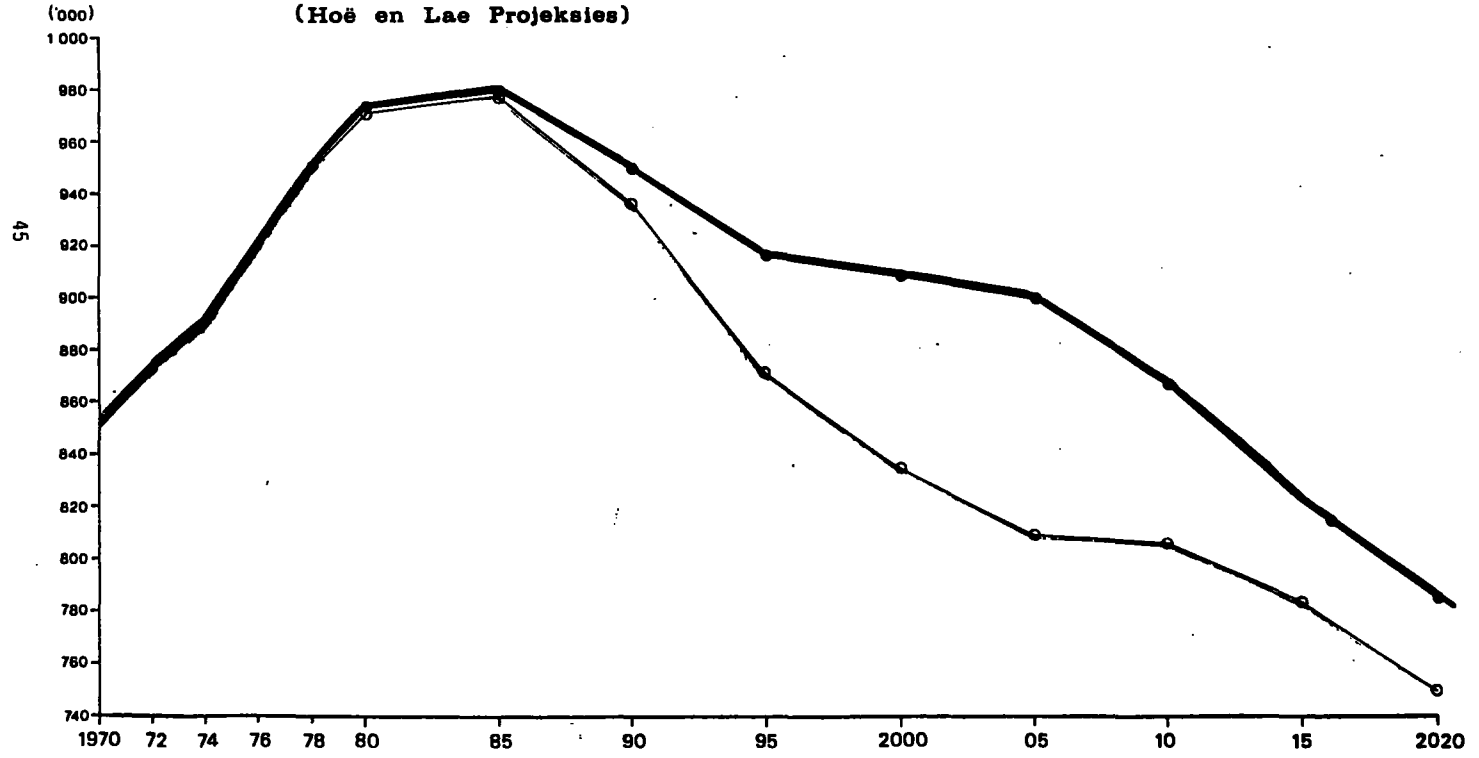


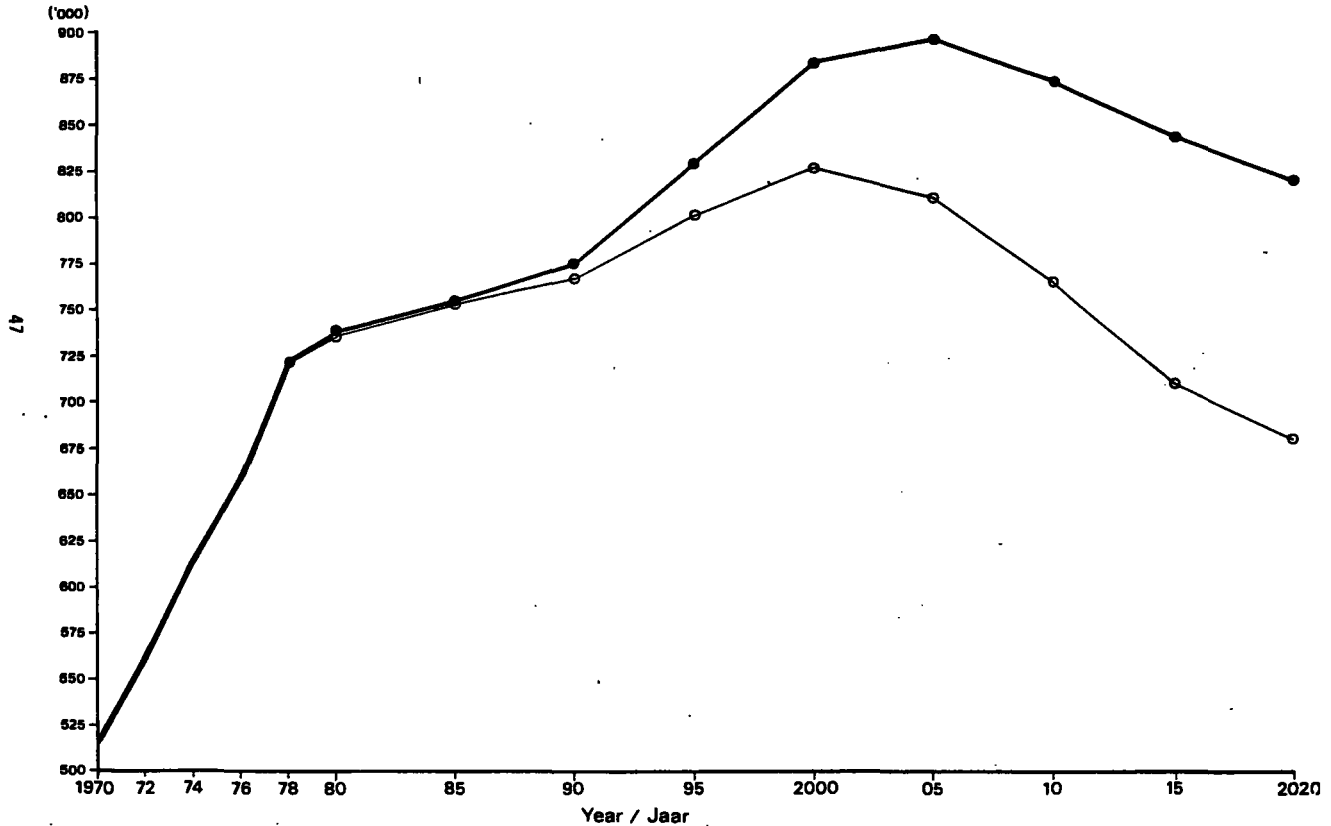
TABLE 5: COLOURED PUPILS 1967 - 2020

YEAR	PRIMARY		SECONDARY		TOTAL	
	LOW	HIGH	LOW	HIGH	LOW	HIGH
1967	309 177		42 142		431 319	
1968	414 909		46 499		461 408	
1969	444 555		52 531		497 086	
1970	458 001		57 507		515 508	
1971	475 222		63 791		539 013	
1972	494 969		68 529		563 498	
1973	512 511		76 720		589 231	
1974	532 378		84 166		616 544	
1975	546 593		89 831		636 424	
1976	563 879		96 549		660 428	
1977	580 944		105 775		686 719	
1978	602 983		119 068		722 051	
1980	610 021	610 054	128 951	128 957	738 972	739 011
1985	597 027	597 047	156 320	156 325	753 347	753 372
1990	563 780	590 514	183 242	185 355	767 022	775 869
1995	587 609	609 102	214 041	221 869	801 650	830 971
2000	587 115	628 158	240 741	257 569	827 856	885 727
2005	560 281	619 577	251 720	278 361	812 001	897 938
2010	516 715	591 150	248 788	284 628	765 503	875 778
2015	471 453	560 865	238 781	284 065	710 234	844 930
2020	446 553	537 553	234 688	282 513	681 241	820 066

1. THE NUMBERS OF PUPILS FROM 1967 - 1978 WERE OBTAINED FROM THE SANSO REPORT NO. 202
2. STD 5 PUPILS WERE INCLUDED WITH THE PRIMARY SECTION

FIGURE 9 : PROJECTION OF COLOURED PUPILS 1970 - 2020  
(High and Low Projection)

FIGUUR 9 : PROEKSIE VAN KLEURLINGLEERLINGE 1970 - 2020  
(Hoë en Lae Proeksies)



47

BILAE 0



FIGURE 10 : PROJECTION OF ASIAN PUPILS 1970 - 2020  
(High and Low Projections)

FIGUR 10 : PROJEKSIE VAN ASIËRLEERLINGE 1970 - 2020  
(Hoë en Lae Projeksies)

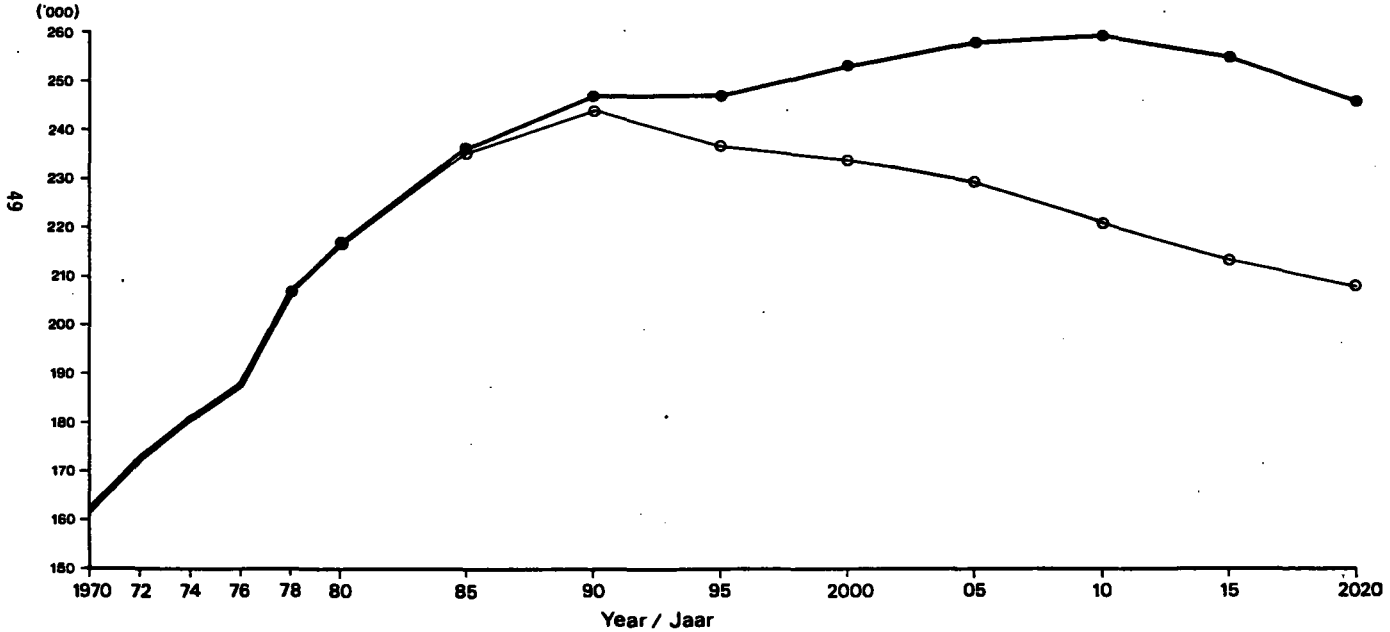




TABLE 7: PROJECTION OF BLACK PUPILS 1967 - 2020

YEAR	PRIMARY		SECONDARY		TOTAL	
	LOW	HIGH	LOW	HIGH	LOW	HIGH
1967	1 981 917		182 035		2 163 952	
1968	2 111 644		202 239		2 313 883	
1969	2 315 715		226 649		2 542 364	
1970	2 479 521		257 929		2 737 450	
1971	2 630 333		286 186		2 916 519	
1972	2 760 249		319 258		3 079 507	
1973	2 923 980		362 519		3 286 499	
1974	3 076 316		409 946		3 486 262	
1975	3 233 211		464 230		3 697 441	
1976	3 360 382		457 130		3 817 512	
1977	3 488 700		546 531		4 030 231	
1978	3 608 577		615 074		4 223 651	
1980	3 851 803	3 874 963	693 097	697 265	4 544 900	4 572 228
1985	4 377 939	4 471 705	989 813	1 011 013	5 367 752	5 482 718
1990	4 816 908	5 032 878	1 329 459	1 339 067	6 146 367	6 421 945
1995	5 093 499	5 455 588	1 663 597	1 781 859	6 757 096	7 237 447
2000	5 236 043	5 755 020	1 962 257	2 156 748	7 198 300	7 911 768
2005	5 246 078	5 939 665	2 193 057	2 483 002	7 439 135	8 422 667
2010	5 177 796	6 065 430	2 356 832	2 760 865	7 534 628	9 826 295
2015	5 056 878	6 161 496	2 453 708	2 989 694	7 510 586	9 151 190
2020	4 879 626	6 214 441	2 482 514	3 161 602	7 362 140	9 376 043

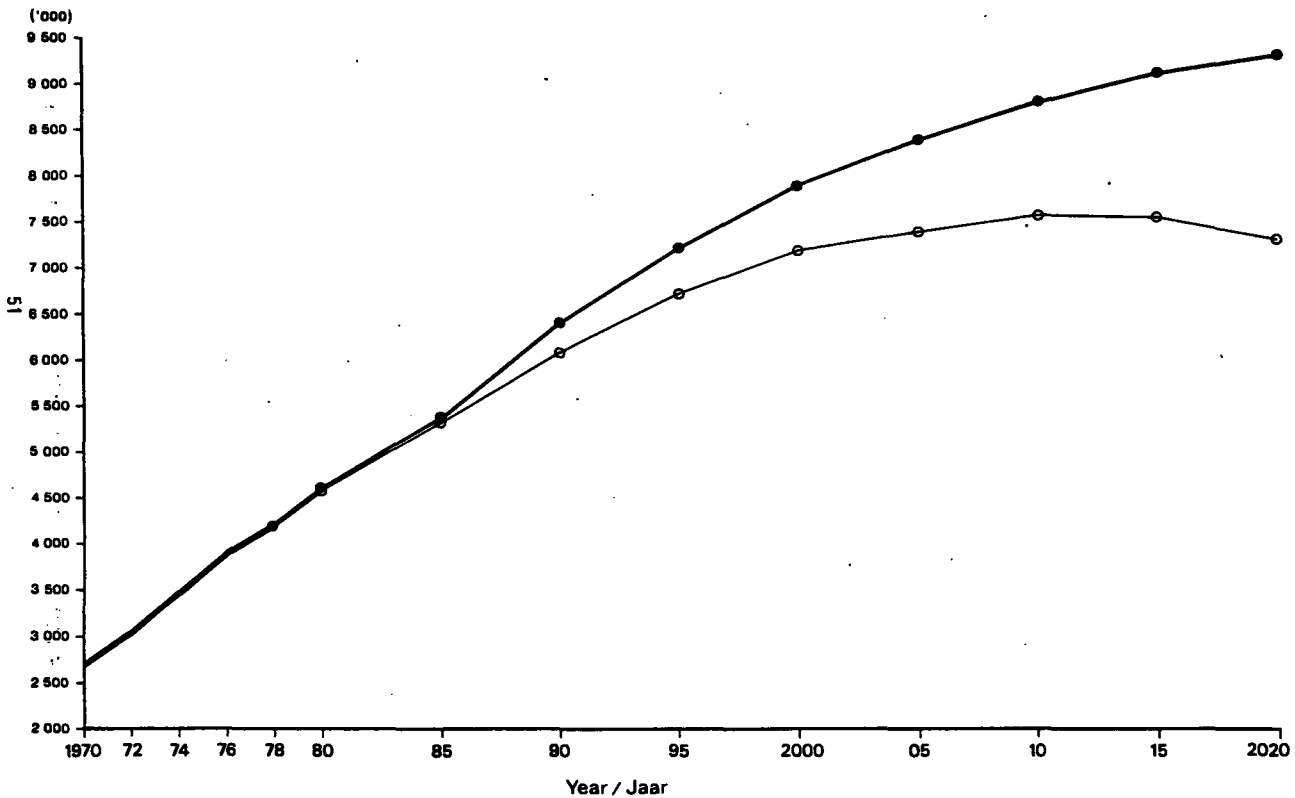
SOURCE: SANSO 202 FOR STATISTICS 1967 - 1978

1. INDEPENDENT AND NATIONAL STATES INCLUDED
2. STD. 5 PUPILS WERE INCLUDED WITH THE NUMBERS OF THE PRIMARY SCHOOL

RAAD VIR GEESTESWETENSKAPLIKE NAVORSING  
HUMAN SCIENCES RESEARCH COUNCIL

FIGURE 11 : PROJECTION OF BLACK PUPILS 1970 - 2020  
(High and Low Projections)

FIGUUR 11 : PROEKSIE VAN SWARTLEERLINGE 1970 - 2020  
(Hoë en Laë Proeksies)



053020

BYLAE S

TABLE 8: CUMULATIVE DISTRIBUTION OF PUPILS OF THE DIFFERENT POPULATION GROUPS IN STANDARDS - 1978

STANDARD	WHITES		COLOUREDS		ASIANS		BLACKS	
	Cumulative Number	%	Cumulative Number	%	Cumulative Number	%	Cumulative Number	%
Grade 1	95 266	10,14	118 315	16,48	23 297	11,29	618 349	19,92
Grade 2	186 569	19,86	221 712	30,87	46 445	22,53	1 113 526	35,87
Standard 1	273 493	29,11	316 687	44,10	67 126	32,56	1 556 975	50,15
Standard 2	358 638	38,18	401 095	55,85	87 429	42,40	1 911 163	61,56
Standard 3	439 420	46,78	476 672	66,38	108 419	52,59	2 218 982	71,48
Standard 4	518 517	55,19	542 978	75,61	128 389	62,27	2 462 918	79,33
Standard 5	592 885	63,11	599 041	83,42	146 251	70,93	2 680 354	86,34
Standard 6	673 519	71,69	642 761	89,51	162 591	78,86	2 851 158	91,84
Standard 7	751 322	79,98	677 111	94,29	177 747	86,21	2 979 436	95,97
Standard 8	824 388	87,75	698 214	97,23	190 956	92,62	3 072 735	98,98
Standard 9	886 807	94,40	710 464	98,94	200 946	97,46	3 094 572	99,68
Standard 10	939 431	100,00	718 109	100,0	206 178	100,00	3 104 457	100,00

1. Transkei, Bophuthatswana and Venda excluded.

TABLE 9: NUMBER OF TEACHERS IN ORDINARY SCHOOLS 1968 - 1978

YEAR	WHITES*	COLOUREDS*	ASIANS	1) BLACKS **	2) BLACKS - **
1968	37 950	14 530	5 776	-	-
1969	38 716	15 701	6 034	-	-
1970	41 337	16 483	6 057	33 528	-
1971	42 404	17 213	6 245	36 708	-
1972	44 105	18 311	6 454	39 066	21 939
1973	43 507	18 784	6 502	42 501	23 143
1974	43 750	19 814	6 679	46 276	24 919
1975	44 565	20 842	6 871	50 277	26 529
1976	45 577	22 115	5 971	54 197	28 800
1977	47 328	23 281	7 220	59 934	29 625
1978	47 233	24 461	7 626	64 049	29 354

\* SOURCE: D OF S

\*\* SOURCE: ANNUAL REPORTS

1) Transkei, Bophuthatswana, Venda excluded

2) Only White area

APPENDIX V

TABLE 10: THE NUMBER OF TEACHERS REQUIRED TO MAINTAIN A SPECIFIC PUPIL DENSITY

YEAR	WHITES			COLOUREDS			ASIANS			BLACKS 1)		
	Pupil density	Number of teachers	Growth-rate per year	Pupil density	Number of teachers	Growth-rate per year	Pupil density	Number of teachers	Growth-rate per year	Pupil density	Number of teachers	Growth-rate per year
1980	20	48 722	0,09	29,07	25 420	1,19	26,87	8 079	2,35	47,11	96 474	4,94
85	20	48 938	-0,87	27,93	26 973	1,19	26,01	9 076	1,39	43,72	122 776	4,41
90	20	46 854	-1,44	26,80	28 620	1,76	25,15	9 725	0,12	40,34	152 364	3,72
95	20	43 574	-0,84	25,67	31 229	1,56	24,29	9 784	0,42	36,95	182 871	3,24
2000	20	41 774	-0,48	24,53	33 749	0,56	23,43	9 994	0,32	33,56	214 490	2,83
05	20	40 790	-0,21	23,40	34 701	-0,19	22,58	10 153	0,08	30,17	246 574	2,67
10	20	40 369	-0,56	22,27	34 374	-0,45	21,72	10 195	0,12	26,78	281 353	2,68
15	20	39 256	-0,93	21,13	33 612	0,27	20,86	10 257	0,36	23,39	321 102	2,77
20	20	37 471		20,00	34 062		20,00	10 446		20,00	368 107	

1. INDEPENDENT BLACK STATES INCLUDED

TABLE 11: QUALIFICATIONS OF TEACHERS - 1978

QUALIFICATION	WHITE		COLOURED		ASIAN		BLACK	
	Number	%	Number	%	Number	%	Number	%
<b>1) With teacher's diploma</b>								
Std 10	4 571	34,33	995	4,50	1 452	20,51	1 311	2,45
Std 8	8 743	65,67	7 563	34,22	4 685	66,16	8 601	16,09
Std 6			13 337	60,34	944	13,33	33 628	62,90
			209	0,94			9 921	18,56
<b>TOTAL</b>	<b>13 314</b>	<b>100,00</b>	<b>22 104</b>	<b>100,0</b>	<b>7 081</b>	<b>100,00</b>	<b>53 461</b>	<b>100,00</b>
<b>2) Without teacher's diploma</b>								
Std 10	149	32,18	234	7,38	29	5,16	181	1,43
Std 8	314	67,82	925	29,19	308	54,80	1 755	13,90
Std 6			952	30,04	225	40,04	10 688	84,67
			1 058	33,39				
<b>TOTAL</b>	<b>463</b>	<b>100,00</b>	<b>3 169</b>	<b>100,00</b>	<b>562</b>	<b>100,00</b>	<b>12 624</b>	<b>100,00</b>

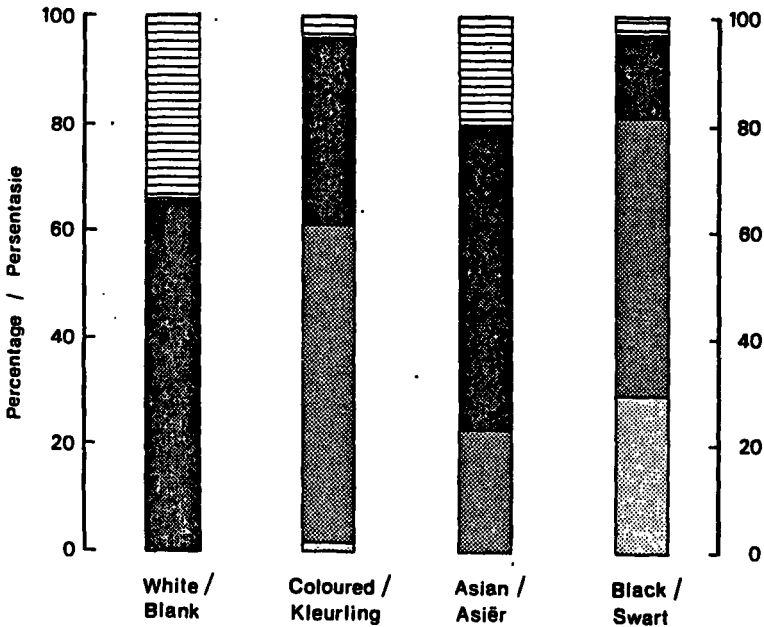
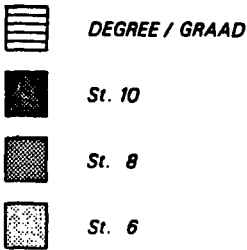
SOURCES: Annual reports of the education departments

- NOTES: 1) Since the determining factor is the percentage teachers in possession of certain qualifications and not necessarily the total number teachers, the qualifications of the teachers attached to the Education Department of the Cape of Good Hope were taken as representative for White education.
- 2) The figures for Asians and Blacks include the qualifications of lecturers concerned in teacher training.
- 3) The 10 688 Black teachers without a teacher's certificate have Std 8 and lower.

FIGURE 12 : QUALIFICATIONS OF TEACHERS  
1978

FIGUUR 12 : KWALIFIKASIES VAN ONDER-  
WYSERS 1978

TEACHERS CERTIFICATE /  
ONDERWYSSERTIFIKAAT PLUS



APPENDIX Y

TABLE 12: WHITE STUDENTS AT TECHNICAL INSTITUTES, TECHNICAL COLLEGES AND TECHNIKONS

YEAR	TECHNICAL INSTITUTE				TECHNICAL COLLEGES				TECHNIKONS			
	F	P	O	T	F	P	O	T	F	P	O	T
1969	-	2 481	-	2 481	177	19 920	-	20 097	2 383	20 721	-	23 140
1970	10	3 357	-	3 387	138	19 789	-	19 927	2 910	26 373	-	29 283
1971	10	3 307	-	3 317	250	20 312	-	20 562	13 893	14 417	-	28 310
1972	718	2 160	-	2 878	14 989	5 264	-	20 253	16 195	12 166	-	28 361
1973	1 419	3 025	3 535	7 979	13 849	6 980	6 748	27 577	15 626	15 275	28 290	59 191
1974	1 898	3 399	4 758	10 055	14 016	6 162	10 933	31 111	16 693	18 347	29 799	64 819
1975	2 163	5 952	4 266	12 354	14 340	6 498	11 813	32 651	17 481	19 346	25 628	62 455
1976	2 131	6 751	4 063	12 954	14 555	6 298	14 089	34 942	18 395	18 694	21 830	58 919
1977	2 080	4 105	4 153	10 338	16 411	8 166	16 445	41 022	19 938	20 891	15 786	56 615
1978	4 812	7 120	12 868	24 800	14 467	9 356	14 067	37 890	18 773	19 381	6 590	44 744

F = FULL-TIME

P = PART-TIME

O = OCCASIONAL

T = TOTAL



## APPENDIX Z

TABLE 13: NUMBER OF STUDENTS AT TRAINING COLLEGES 1968 - 1980

YEAR	WHITE			COLOURED			ASIAN			BLACK			TOTAL		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
1968	2 457	7 255	9 712	713	1 311	2 024	535	328	863	-	-	-	3 705	8 894	12 599
1969	2 590	7 752	10 342	699	1 444	2 143	553	347	900	-	-	-	3 842	9 543	13 385
1970	2 866	8 542	11 408	805	1 887	2 692	494	374	868	2 078	2 885	4 963	6 243	13 688	19 931
1971	3 053	9 499	12 552	827	2 167	2 994	490	361	851	2 132	3 127	5 259	6 502	15 154	21 656
1972	2 730	9 326	12 056	1 044	2 653	3 697	465	367	832	2 494	3 644	6 138	6 733	15 990	22 723
1973	2 847	9 414	12 261	1 206	3 228	4 434	380	268	648	3 056	4 177	7 233	7 489	17 087	24 576
1974	2 794	8 660	11 454	1 364	3 332	4 696	368	233	601	3 606	4 950	8 556	8 132	17 175	25 307
1975	2 662	8 367	11 029	1 499	3 456	4 955	297	261	558	4 298	6 296	10 594	8 756	18 380	27 136
1976	2 580	8 717	11 297	1 329	3 358	4 687	290	390	680	4 801	7 164	11 965	9 000	19 629	28 629
1977	2 946	9 842	12 788	1 417	3 216	4 633	345	547	892	4 904	8 385	13 289	9 612	21 990	31 602
1978	3 163	10 808	13 971	1 581	2 978	4 559	378	591	969	4 947	9 223	14 170	10 069	23 600	33 669
1979	3 717	11 229	14 946	1 833	3 722	5 555	462	627	1 089	5 088	9 268	14 356	11 100	24 846	35 946

TABLE 14: PROJECTION OF WHITE STUDENTS AT WHITE RESIDENTIAL UNIVERSITIES

YEAR	MALE	FEMALE	TOTAL	POPULATION (1000)	STUDENTS PER 1000 OF THE POPULATION
1968	33 599	13 712	47 311		
1969	35 350	14 625	49 975		
1970	37 489	15 824	53 313		
1971	38 264	16 625	54 889		
1972	40 413	18 744	59 157		
1973	42 431	20 546	62 977		
1974	44 906	22 000	66 906		
1975	46 591	23 389	69 980	4 275	16,37
1976	46 972	25 009	71 981		
1977	48 319	27 303	75 622		
1978	49 485	28 933	78 418		
		<u>PROJECTIONS</u>			
1979	51 054	32 829	83 883		
1980	52 336	34 467	86 803	4 496	19,31
1985	55 237	41 657	96 894	4 687	20,67
1990	61 453	51 964	113 417	4 834	23,46
1995	63 936	51 615	115 551	4 965	23,27
2000	57 374	50 730	108 104	5 085	21,26
2005	54 868	49 159	104 027	5 179	20,09
2010	51 552	48 462	100 014	5 240	19,09
2015	51 430	49 178	100 608	5 268	19,10
2020	51 253	48 648	99 901	5 263	18,98

Note: Since migration still played a role until 1974, data in respect of population are only given from 1975.

TABLE 15: PROJECTION OF COLOURED STUDENTS AT THE UNIVERSITY OF WESTERN CAPE AND AT WHITE RESIDENTIAL UNIVERSITIES

YEAR	MALE	FEMALE	TOTAL	POPULATION (1000)	STUDENTS PER 1000 OF THE POPULATION
1968	760	222	982		
1969	847	207	1 054		
1970	912	258	1 170	2 074	0,56
1971	970	290	1 260		
1972	1 225	359	1 584		
1973	1 415	461	1 876		
1974	1 440	413	1 853		
1975	1 870	557	2 427	2 333	1,04
1976	2 244	753	2 997		
1977	2 507	910	3 417		
1978	2 703	1 080	3 783		
<u>PROJECTIONS</u>					
1979	3 260	1 381	4 641		
1980	3 664	1 602	5 266	2 539	2,07
1985	5 656	2 584	8 240	2 781	2,96
1990	6 585	3 436	10 021	3 028	3,31
1995	7 305	3 716	11 021	3 258	3,38
2000	7 328	4 219	11 547	3 453	3,34
2005	7 975	4 519	12 494	3 614	3,46
2010	8 461	4 525	12 986	3 744	3,47
2015	8 511	4 281	12 792	3 871	3,30
2020	8 084	3 936	12 020	3 985	3,02

TABLE 16: PROJECTION OF ASIAN STUDENTS AT DURBAN-WESTVILLE AND AT WHITE RESIDENTIAL UNIVERSITIES

YEAR	MALE	FEMALE	TOTAL	POPULATION (1000)	STUDENTS PER 1000 OF THE POPULATION
1968	1 730	400	2 130		
1969	1 897	464	2 361		
1970	1 946	520	2 466	642	3,84
1971	2 014	534	2 548		
1972	2 172	672	2 844		
1973	2 336	728	3 064		
1974	2 365	851	3 216		
1975	2 593	943	3 536	727	4,86
1976	2 858	1 156	4 014		
1977	3 294	1 313	4 607		
1978	3 834	1 713	5 547		
<u>PROJECTIONS</u>					
1979	3 992	1 768	5 760		
1980	4 212	1 948	6 160	813	7,58
1985	5 741	2 973	8 714	890	9,79
1990	8 040	4 203	12 243	960	12,75
1995	9 353	4 471	13 824	1 026	13,47
2000	9 767	4 550	14 317	1 087	13,17
2005	10 055	4 520	14 575	1 138	12,81
2010	10 162	4 454	14 616	1 185	12,33
2015	10 186	4 351	14 537	1 227	11,85
2020	9 927	4 139	14 066	1 264	11,13

TABLE 17: PROJECTIONS OF BLACK STUDENTS AT BLACK AND WHITE RESIDENTIAL UNIVERSITIES

YEAR	FIRST METHOD		T	SECOND METHOD	POPULATION 1000	STUDENTS PER 1000 OF THE POPULATION
	M					
1968	1 239	367	1 606	1 606		
1969	1 398	372	1 770	1 770		
1970	1 723	466	2 189	2 189	15 428	0,14
1971	2 000	601	2 601	2 601		
1972	2 364	862	3 226	3 226		
1973	2 575	995	3 570	3 570		
1974	2 664	1 164	3 828	3 828		
1975	3 074	1 348	4 422	4 422	17 368	0,25
1976	3 862	1 691	5 553	5 553		
1977	3 375	1 557	4 932	4 932		
1978	3 512	1 755	5 267	5 267		
	PROJECTIONS					
1980	4 719	2 209	6 928	8 485	19 472	0,44
1985	6 217	3 044	9 261	12 066	21 744	0,55
1990	7 715	3 878	11 593	15 712	24 107	0,65
1995	9 213	4 713	13 926	20 914	26 483	0,79
2000	10 711	5 547	16 258	26 138	28 806	0,91
2005	12 209	6 382	18 591	32 050	31 060	1,03
2010	13 708	7 216	20 924	37 684	33 181	1,14
2015	15 206	8 050	23 256	42 370	35 107	1,22
2020	16 704	8 885	25 589	47 146	36 793	1,28

TABLE 18: PROJECTION OF UNISA STUDENTS ACCORDING TO POPULATION GROUP

YEAR	WHITES	COLOURED	ASIANS	BLACKS	TOTAL
1968	17 161	545	1 094	2 236	21 036
1969	16 557	478	996	2 144	20 175
1970	17 870	582	1 014	2 420	21 886
1971	20 239	739	1 662	2 804	25 444
1972	23 339	824	1 785	3 341	29 289
1973	25 387	1 014	1 938	3 765	32 104
1974	27 252	1 184	2 019	4 018	34 473
1975	30 936	1 512	2 816	4 943	40 207
1976	33 102	1 767	3 347	5 577	43 793
1977	34 818	2 000	3 576	6 320	46 714
1978	38 257	2 420	3 927	7 796	52 400
1979	38 006	2 724	4 347	9 026	54 103
<u>PROJECTIONS</u>					
1980	37 404	2 822	5 145	10 687	56 058
1985	45 175	3 789	8 055	19 584	76 603
1990	47 773	5 395	10 157	28 264	91 589
1995	49 156	7 207	11 479	35 186	103 028
2000	49 906	9 175	12 221	39 807	111 109
2005	50 322	11 255	12 615	42 580	116 772
2010	50 560	13 410	12 819	44 147	120 936
2015	50 698	15 614	12 924	45 005	124 241
2020	50 781	17 843	12 979	45 468	127 071

SOURCE: DNE Annual reports

FIGURE 13 : STUDENTS AT RESIDENTIAL UNIVERSITIES

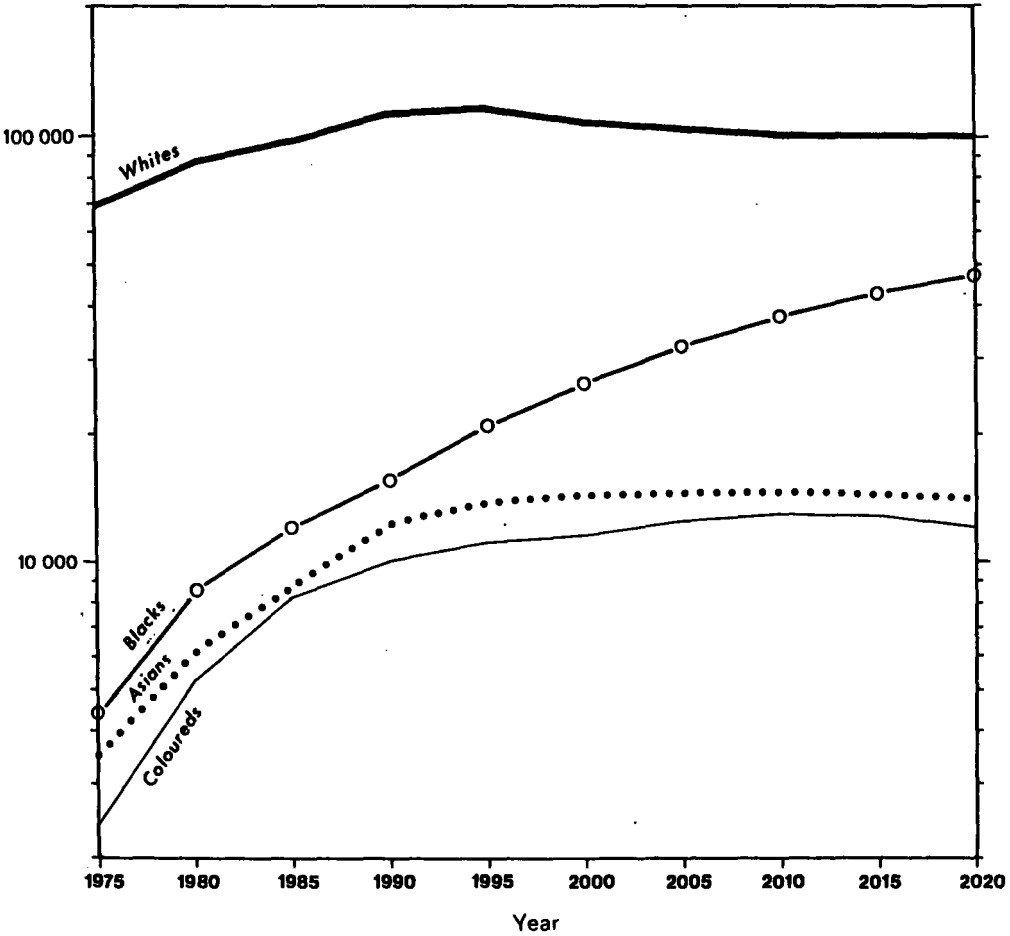
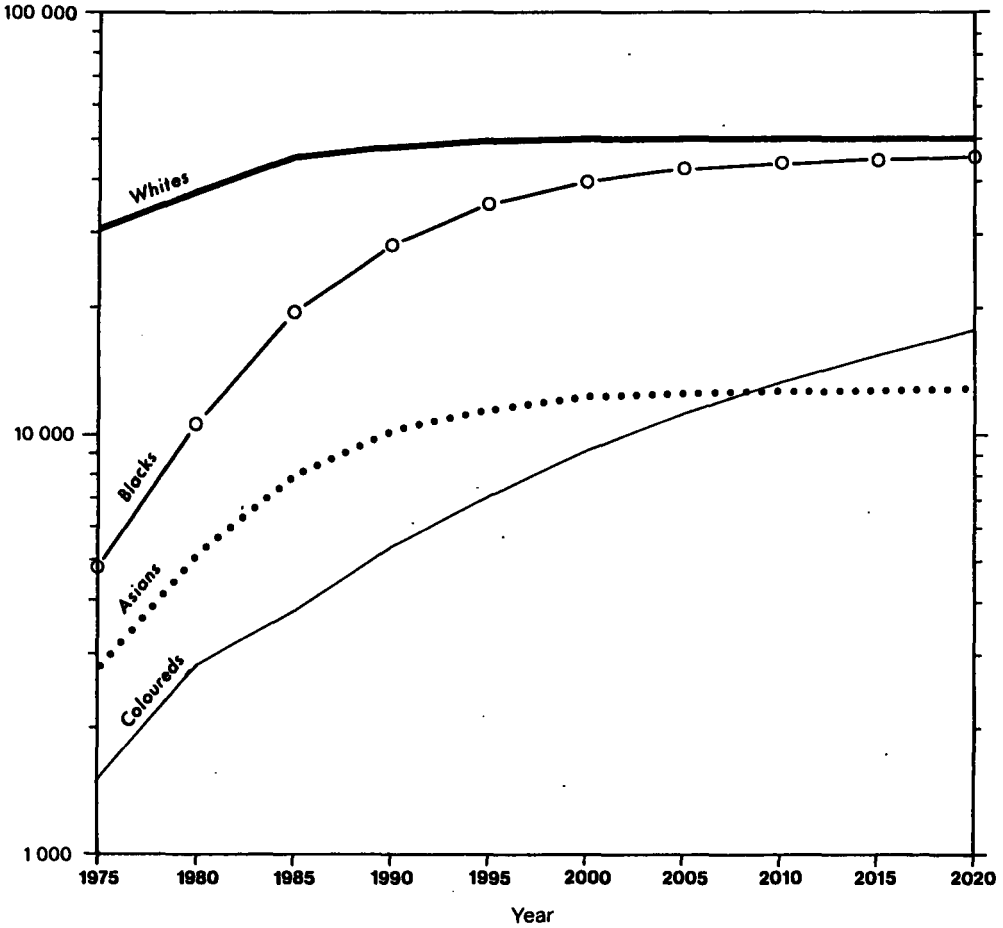


FIGURE 14 : ENROLLED STUDENTS AT THE UNIVERSITY OF SOUTH AFRICA





## APPENDIX TO REPORT NO 004/2 AND 0011/2

## METHOD FOLLOWED IN THE PROJECTION OF NUMBERS OF PUPILS FOR THE FOUR POPULATION GROUPS

## 1. INTRODUCTION

The population projections for Southern Africa undertaken by Van Tonder and Mostert (HSRC report No S73, 1980) formed the basis on which the expected number of pupils in ordinary schools up to and including 2020 were calculated. The projected number of pupils for the different population groups therefore follow the same basic trends as those reflected by the population projections.

## 2. METHOD

The method used to project the total number of pupils can be summarized in three steps:

- (i) The population in the age group 6 to 18 years was calculated by means of interpolation from the given population projections for the period 1970 to 1978, as well as for the years 1980, 1985, 1990 ----- 2020.
- (ii) The ratio of the total number of pupils to the population in the age group 6 to 18 years was calculated for the period 1970 to 1978 and afterwards extrapolated to 2020 by means of a logistic curve or a modified exponential curve.
- (iii) The extrapolated ratios were applied to the projected numbers of the population in the age group 6 to 18 years to find the projected number of pupils.

In Table A the projected numbers of the population in the age group 6 to 18 years for the different population groups are shown and the low population projection represents the projection by Van Tonder and Mostert.\*

TABLE A  
POPULATION IN THE AGE GROUP 6 TO 18 YEARS

YEAR	WHITES	COLOUREDS	ASIANS	BLACKS
1980	1 095 010	836 604	246 660	6 153 398
1985	1 080 068	823 960	262 066	6 658 916
1990	1 025 700	825 554	268 548	7 223 372
1995	950 248	856 464	259 524	7 687 254
2000	909 422	881 542	255 078	8 034 714
2005	887 308	863 280	249 454	8 210 966
2010	877 868	813 240	240 816	8 262 560
2015	853 486	754 284	232 610	8 205 600
2020	814 674	723 416	227 092	8 025 880

\* According to Prof. J.L. Sadie the high projections for Blacks must be accepted as the median projections.

Table B shows the extrapolated ratios of the total number of pupils to the population in the age group 6 to 18 years for the four different population groups.

In the case of the Whites, extrapolation occurred on the assumption that the ratio will increase according to a modified exponential curve and that the ratio will not exceed 0,92. Only historical data from 1975 were used as indicator of the future trend, since migration had had no real effect on the numbers of the population since that year and the calculated ratios for the preceding years (when migration definitely was a factor that had to be taken into consideration) were therefore not comparable with the calculated ratios for 1975 and later. The saturation value of 0,92 was regarded as realistic because

- (a) the projections concerned were merely applicable to pupils in ordinary schools,
- (b) the compulsory school-age is 16 years.

In the case of the other population groups the extrapolation occurred on the assumption that the ratios concerned would increase according to a logistic curve. The same saturation value as for the Whites, namely 0,92, was accepted in all cases. In the case of the Coloureds the difference between the actual and the estimated ratios for 1978 was exceptionally high, which resulted in an unrealistic projection of numbers of pupils in 1980. The fitted curve was consequently adjusted to eliminate this anomaly.

TABLE B

RATIO OF THE TOTAL NUMBER OF PUPILS TO THE POPULATION IN THE AGE GROUP 6 TO 18 YEARS

YEAR	WHITES	COLOUREDS	ASIANS	BLACKS
1980	,8899	,8833	,8801	,7386
1985	,9062	,9143	,9008	,8061
1990	,9136	,9291	,9108	,8509
1995	,9171	,9360	,9157	,8790
2000	,9187	,9391	,9180	,8959
2005	,9194	,9406	,9190	,9060
2010	,9197	,9413	,9195	,9119
2015	,9199	,9416	,9198	,9153
2020	,9199	,9417	,9199	,9173

The projections of primary and secondary pupils were deduced from the projections of the total number of pupils, by means of assumptions in respect of the ratio of secondary pupils to the total number of pupils. In the case of the Whites it was assumed that the ratio stabilized at 0,365 while logistic curves with a saturation value of 0,365 were accepted in the other cases as expected future trends. In table C the extrapolated ratios are given for the different population groups.

TABLE C

## RATIO OF SECONDARY PUPILS TO THE TOTAL NUMBER OF PUPILS

YEAR	WHITES	COLOURED	ASIANS	BLACKS
1980	,3650	,1745	,3009	,1525
1985	,3650	,2075	,3325	,1844
1990	,3650	,2389	,3493	,2163
1995	,3650	,2670	,3576	,2462
2000	,3650	,2908	,3616	,2726
2005	,3650	,3100	,3634	,2948
2010	,3650	,3250	,3643	,3128
2015	,3650	,3362	,3647	,3267
2020	,3650	,3445	,3648	,3372

## 3. CONCLUSION

In Table 2 of the main report the projected average number of births for five-year periods are tabulated and reflect the expected sharp decline in the birth-rate for the different population groups.

An alternative method for the projection of numbers of pupils would be to relate the number of births to the number of grade 1 pupils, and after that to project the number of pupils according to standard, with due consideration of the annual flow-through or drop-out of pupils in each standard. It would probably result in more accurate projection, especially in respect of the numbers of pupils in the primary and secondary sections. Owing to the time factor involved in the investigation into education, this projection technique can, however, not be followed.

The projection method which was followed has the advantage that, as far as the investigation into education is concerned, the population projections, and the projections of numbers of pupils do not reveal conflicting trends.

**METHOD OF PROJECTION: TREND PROJECTION**

1. For each of the four population groups the number of secondary pupils was expressed as a percentage of the population in the age group 13 to 18 years for the period 1970 to 1978 (1975 to 1978 in the case of the Whites).
2. The calculated percentages were projected to 2020 on the assumption that the abovementioned percentages would increase according to one or other asymptotic growth curve.
3. In the case of the Whites the data of 1975 to 1978 were used as a guide to project the abovementioned percentages according to a modified exponential curve.
4. In the case of the Coloureds tentative estimates were made by means of linear extrapolation for the two years 1980 and 1985 as the first step (short-term projection). The data of 1974 to 1978 together with the two estimated values for 1980 and 1985 were then used as guides for projection to 2020 with the aid of the Richards family of curves.
5. An additional assumption for projection purposes had to be made owing to great fluctuations in the historical data for Asians. A modified exponential curve with a saturation value equal to the projected percentage for Whites in 2020 was accepted as the trend line. By using the data from 1970 to 1973 as a guide, projections were afterwards made with the aid of the abovementioned curve.
6. In the case of the Blacks the projection was made as for the Coloureds, with this exception that logistic curves were used instead of the Richards family of curves.
7. The projected percentages for the four population groups were finally applied to the projected populations in the age group 13 to 18 years to determine the projected number of secondary pupils.



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