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# A Manpower Study for KwaZulu

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A MANPOWER STUDY FOR KWAZULU

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# 1 INTRODUCTION

## 1.1 BACKGROUND AND AIM

In the publication *Towards a plan for KwaZulu* it was recommended that "A manpower plan should be prepared, flowing from the targets set in this plan so as to ensure the correct allocation of educational resources and to meet the anticipated needs of the KwaZulu economy" (Thorrington-Smith et.al, p. 87). Acting on this recommendation, the KwaZulu Government requested the HSRC to undertake a manpower study for KwaZulu.

The demand for education is both a derived and a direct demand, and education has been viewed as both consumption and investment. The social or direct demand for education is derived from the need of the individual and society to acquire knowledge and from the belief that education could lead to a greater command of the better things in life. In all developing countries there is a tremendous social demand for education which in many cases leads to an imbalance between the social demand for education and what the authorities can afford to spend on education.

Educational planning have been viewed by planners mainly from two viewpoints. One is that educational planning is independent of other forms of planning (because of the social demand?) and the other that educational planning should be an integral part of economic planning. The social demand is a reality which the authorities should accept, and only they can decide what part of the national resources can be spent to satisfy this demand.

It has, however, also been recognized that the needs of the economy should be taken into account because certain skill shortages can impede the process of growth and thereby influence the capacity of the country to meet the social demand.

This realization, brought to the fore in the work of Harbison, Myers and Parnes led to a whole crop of manpower demand and supply<sup>1)</sup> studies

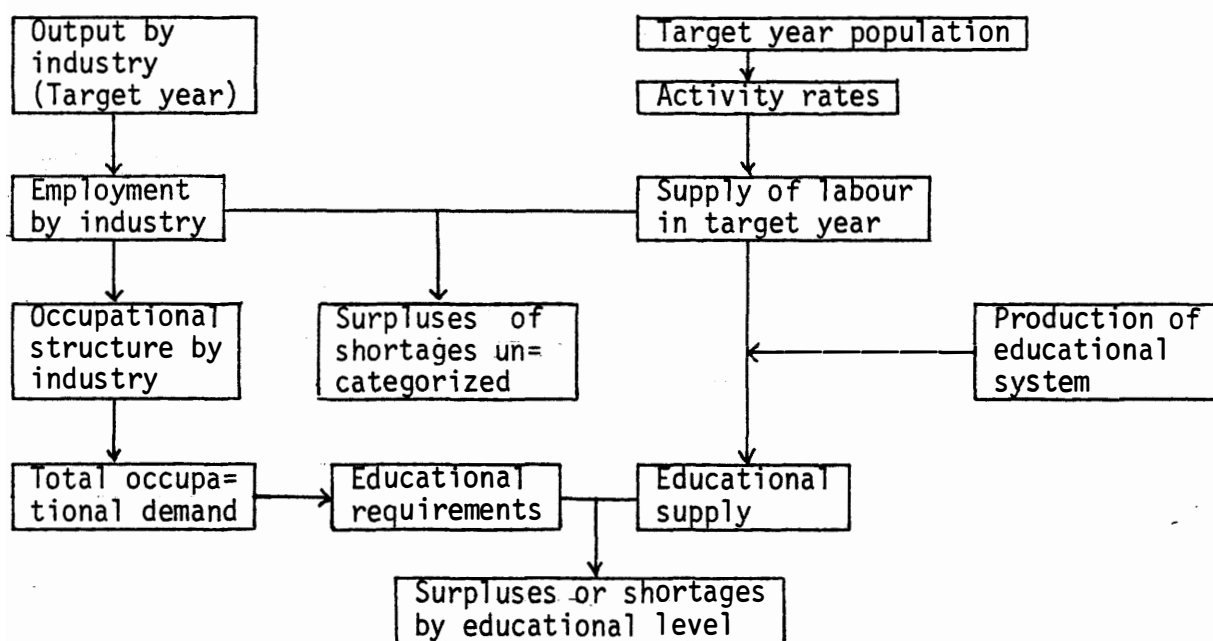
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<sup>1)</sup> Some authors prefer the terms requirements and availabilities instead of demand and supply because price, which is an integral part of demand and supply theory is usually not considered at all.

during the 1960's. Because of imbalances noticed between the demand for certain categories of labour and the supply of training institutions, the general aim was to bring training into line with the demands of the economy. Typical and well-known examples of such studies are the reports on the Mediterranean Regional Project. These reports are "essentially a practical attempt by six mediterranean countries to relate educational planning to economic growth and social advancement" (OECD, p. 11), in other words to do what is recommended in *Towards a plan for KwaZulu*. At this stage it is necessary to go into the methodology of manpower demand and supply studies in general. Quite a number of relevant "handbooks" have been published. Two of the better known are the USA Bureau of Labour Statistics' *Forecasting of Manpower Requirements* and the OECD's *Forecasting of the Active population by Occupation and level of skill*.

Most of the manpower demand and supply studies start with a target for economic growth in a certain target year. From this target the demand for labour is estimated and categorized by occupation by sex by educational level. This demand is then compared with the estimated supply produced by the educational system. Figure 1 is a schematic representation of the general methodology.

FIGURE 1  
SCHEME FOR MANPOWER DEMAND AND SUPPLY STUDIES



These studies give an indication of demand and supply on an educational level basis and not by occupation. There are only a few occupations where training and occupation can directly be related, e.g. medicine, nursing, law etc. A person who joins the labour force with Std 10, for example, may enter into a variety of occupations. Special occupational studies are then necessary to supplement the general study explained in figure 1.

The point of departure for all of these studies is an estimate of the production of the economy of the country in the target year. The data needs for these studies are high. Even in countries with a good system of national accounting and input-output tables, accurate demand estimates present great problems. Bazdek concludes an article on manpower forecasting (Bazdek, 1975) in the USA with "Finally, some means must be devised to make US manpower data more relevant so that forecasts can provide meaningful input into problems of manpower training, educational planning, vocational guidance and the estimation of occupational mobility and supply" (p. 42).

Because of a lack of data, studies have been carried out in which it was assumed that a lesser developed country will, by a certain target date, have attained the production and manpower structure of a more developed country. These studies have no anchor point. By choosing a specific development stage of the developed country, nearly any occupational structure can be postulated for the developing country and therefore provides no practical guideline for educational planning.

In the developing countries, manpower studies were in many cases coupled to the so-called five year economic development plans. The development level envisaged in these plans seldom materialized and the manpower estimates based on these plans could therefore not serve as practical guidelines for educational planning. The possibility may arise that unrealistic economic development plans could be detrimental to economic development as such. The supposedly clear causal correlation between investment in education and economic growth, as accepted by Edward F. Denison, is seldom valid in the third world. Ill-considered investment in education, based on ideals of economic development, can impede economic growth because limited funds could be used more productively elsewhere.

The usual kind of manpower demand and supply study is neither a feasible nor a practical proposition for KwaZulu. As has been pointed out, the point of departure of these manpower studies (on which the "manpower plan" is based) is an economic development plan in which clear and, above all, realistic growth targets are set out. That the Thorrington-Smith study is not such a plan, is clear from the title "Towards a plan ..." and from the perusal of the study itself.

The economic plan (Chapter 4 of the report) is given in broad outline only. On page 122 it is stated for example that "Little purpose will be served in trying to establish the demand pattern for various types of industry since little experience is available as to the types of industries which might find KwaZulu an attractive location". In the absence of such a demand pattern it also serves no purpose to try and estimate an occupational demand because the skill requirements of the various industries differ. Much the same applies to the other sectors mentioned in Table 3.5 on page 126. The demand for skills will largely depend on the kind of product produced or service rendered.

A realistic estimate of the demand for labour for a certain future target date is therefore impossible. To speculate on the demand based on the possible potential for growth would not only be futile but could actually be harmful if it should lead to a rash investment in education.

To construct a baseline occupation by industry by educational level matrix would present no great problem. One of the confounding factors, however, is the fact that one of KwaZulu's main exports is labour. The demand outside KwaZulu has an important effect on the consumption of the production of its educational system. To estimate this demand, a population census would have to be undertaken. The ordinary kind of manpower demand and supply study would therefore only mean piling one supposition upon the other.

The preceding arguments do not imply that a manpower study from which valuable information for educational planning can be gleaned, is impossible or that the recommendation in the Thorrington-Smith study is a rash one. What the situation does dictate is a much more unsophisticated

approach. This again does not necessarily imply sacrificing realism or accuracy. A study by Ahamed and Blaug (1973) shows that even sophisticated studies have atrocious records of accuracy. One must also bear in mind that manpower planning in a free society mainly depends on supplying information on the strength of which citizens may reach reasonable assessments and providing the necessary training infra-structure.

This study is aimed at determining the needs of the economy regarding special skills mainly obtained by training at a post school level. Since, as has also been shown in *Towards a plan for KwaZulu*, the public sector will be the prime mover in economic development, special attention will be paid to the manpower requirements of the public sector.

## 1.2 METHOD

### 1.2.1 *Introduction*

In determining the skills mentioned above, a base line survey of job opportunities by occupation by economic sector and educational level is necessary. The method used to obtain this information was determined by the available information, as well as the cost of obtaining the information.

In 1969 the HSRC conducted a survey on job opportunities in all districts of KwaZulu (Meij, 1970). All sectors of the economy, except agriculture and domestic servants, were included in the survey. Table 1.1 shows the number of job opportunities by economic sector as determined in that study. From that study it was clear that the public sector was the main generating source of paid employment. The job opportunities in the services sector was mainly in church hospitals, which are now part of the public sector.

In 1973 a survey on job opportunities created by building and construction activities, was undertaken (Wolmarans, 1974). This survey showed that of the 9203 job opportunities connected with building and construction, 64 % were in the public sector, e.g. the Department of Works and the agricultural engineering section of the Department Agriculture and Forestry. This survey also showed that the occupational structure in



TABLE 1.1

JOB OPPORTUNITIES ACCORDING TO OCCUPATIONAL GROUPS AND SECTOR  
(Domestic servants and farmers and farmworkers excluded)

Occupational group	Mining and quarrying	Manu= facturing	Con= struction	Com= merce	Transport and communication	Ser= vices	Go= vernment	Total N	Total %	
Professional workers	-	39	31	-	-	2179	6351	8600	23,9	
Managerial and executive workers	2	69	2	1174	240	302	256	2045	5,7	
Clerical workers	4	11	18	327	58	149	468	1035	2,9	
Sales workers	-	6	-	3248	9	469	6	3738	10,4	
Transport and communication workers	10	24	29	337	104	62	723	1289	3,6	
Service workers	1	3	39	286	1	855	1106	2291	6,4	
Artisans and apprentices	6	57	247	147	39	91	536	1123	3,1	
Operators and semi-skilled workers	6	219	58	174	9	34	484	984	2,7	
Labourers	163	487	1627	1025	151	906	10519	14878	41,3	
TOTAL	N %	192 0,5	915 2,5	2051 5,7	6718 18,7	611 1,7	5047 14,0	20449 56,8	35983	100

the public sector reflects that of the private sector and is even more diverse. Manpower bottlenecks can therefore be determined by looking at the situation in the public sector.

In 1974 and 1975 surveys on job opportunities were undertaken in the manufacturing sector of decentralized growth points. Table 1.2 gives an occupational breakdown of the Black labour force used in some of these growth points (Herbst and Welthagen, 1975 and 1976).

TABLE 1.2  
OCCUPATIONAL STRUCTURE OF THE BLACK LABOUR FORCE IN THE MANUFACTURING SECTOR OF SOME DECENTRALIZED GROWTH POINTS

Occupation	Ladysmith	Hammarsdale	Richardsbay Empangeni
	1974 %	1975 %	1975 %
Professional and technical workers	0,1	0,2	0,8
Managerial workers	0,2	0,1	0,4
Clerical workers	1,1	2,1	2,4
Sales workers	0,3	0,1	-
Transport workers	0,3	2,3	3,6
Service workers	1,0	1,5	3,0
Foremen and supervisors	2,9	2,9	3,7
Artisans and apprentices	-	0,04	-
Non-certificated artisans	0,1	1,1	2,4
Operators	50,7	32,6	21,8
Semi-skilled workers	9,8	11,4	19,8
Labourers	33,5	45,8	42,2
TOTAL	N 4962	9810	3118
	% 100	100	100
Blacks as % of Total Labour Force	87,4	89,1	80,0

Table 1.2 shows that Blacks form a very large complement of the manufacturing sector's labour force (ranging from 80,0 % for Richardsbay/Empangeni to 89,1 % for Hammarsdale). Most of these jobs are filled by people living in KwaZulu. It is clear from the occupational breakdown that, except for a certain level of formal education, the training load on the KwaZulu government is low. Most of the necessary training (except for the training of a number of technicians) is usually supplied by the

employers. The RSA government has, however, tried to facilitate this training by establishing ad hoc training centres.

The retail trade in KwaZulu is characterized by its numerous but small general trading companies. These companies have a very limited occupational structure. Most of the large concerns in wholesale and retail trade are managed and staffed by KwaZulu Development Corporation. The manning structure in the small concerns have not changed to any marked extent.

Given the circumstances sketched above, it was decided to undertake a new field survey to determine the number of job opportunities in (a) the government sector, (b) the manufacturing sector and (c) the KDC and its organizations. An estimate of job opportunities for the retail trade was made by determining the number of businesses in all the districts of KwaZulu and then using the occupational distribution obtained in the 1969-survey.

These surveys and estimates will be briefly discussed.

#### 1.2.2 *Survey on job opportunities in the government sector*

A questionnaire (Appendix 1) was completed for each of the government departments of KwaZulu i.e. the Departments of the Interior, Justice, Agriculture and Forestry, Health, Education and Culture, Works and Finance. The RSA Department of Post and Telegraphs also completed a questionnaire for their personnel in KwaZulu.

The government departments found it extremely difficult to make any estimates of the manpower situation in 1984 and could in some instances supply very little information about vacancies.

#### 1.2.3 *The manufacturing sector*

Most of the manufacturing concerns are concentrated in Isithebe and all these factories were surveyed. No attempt was made to cover all the small manufacturing concerns. The manufacturing concerns at Tugela Ferry and Umlazi were included. In all, 34 factories were included. The organizations visited were unable to make any realistic estimate of job opportunities 5 years in advance.

#### 1.2.4 *KwaZulu Development Corporation*

The KDC completed one questionnaire for all its concerns. It also supplied additional information on job opportunities in other transport companies. Like the other concerns, KDC was hesitant in including estimates of future needs.

#### 1.2.5 *Estimate of job opportunities in the retail and wholesale trade*

The HSRC, through the office of the Chief Minister and Finance, received a list of all business concerns in KwaZulu. This was done on a district basis. According to this list, 2075 businesses were active at the beginning of 1979. This excludes hawkers, pedlars, herbals etc. Based on this list and assuming that the occupational structure will remain as it was in 1969, an estimate was made of the job opportunities in the commercial sector in KwaZulu in 1979.

### 1.3 STRUCTURE OF THE REPORT

It has been shown in the preceding paragraphs that the public sector is the main employer in KwaZulu and the main generator of job opportunities for trained and high level manpower. This is substantiated in the chapters to follow. In chapter 2 of this report the educational scene in KwaZulu is examined because it supplies the necessary background for a realistic appraisal of the demand for manpower in various occupations or occupational groups. In chapter 3 the demand in various occupations and occupational groups are considered. Chapter 4 supplies a synopsis of the main findings.

CHAPTER 2  
THE EDUCATIONAL SCENE

2.1 INTRODUCTION

The educational system supplies the trained or trainable manpower. An analysis of the production of this system is necessary for a realistic assessment of how demands in the various sectors and occupations can be met. The analysis therefore supplies the background against which the educational planning must be carried out. The problems that the Department of Education and Culture experiences in providing education to the KwaZulu people will not be dealt with. These problems are well documented in the annual reports of the Department.

2.2 EXPENDITURE ON EDUCATION

A significant amount of state revenue is spent on education.

Table 2.1 shows the total expenditure of the KwaZulu Government for the period 1972/73 to 1979/80. As the final expenditure figures are not yet available, the figures supplied for 78/79 and 79/80 are the approved budget. Because of the inflation rate, expenditure is also expressed at constant 1970 prices. The cost of living index for all items were used in calculating the value of the expenditure at 1970 prices.

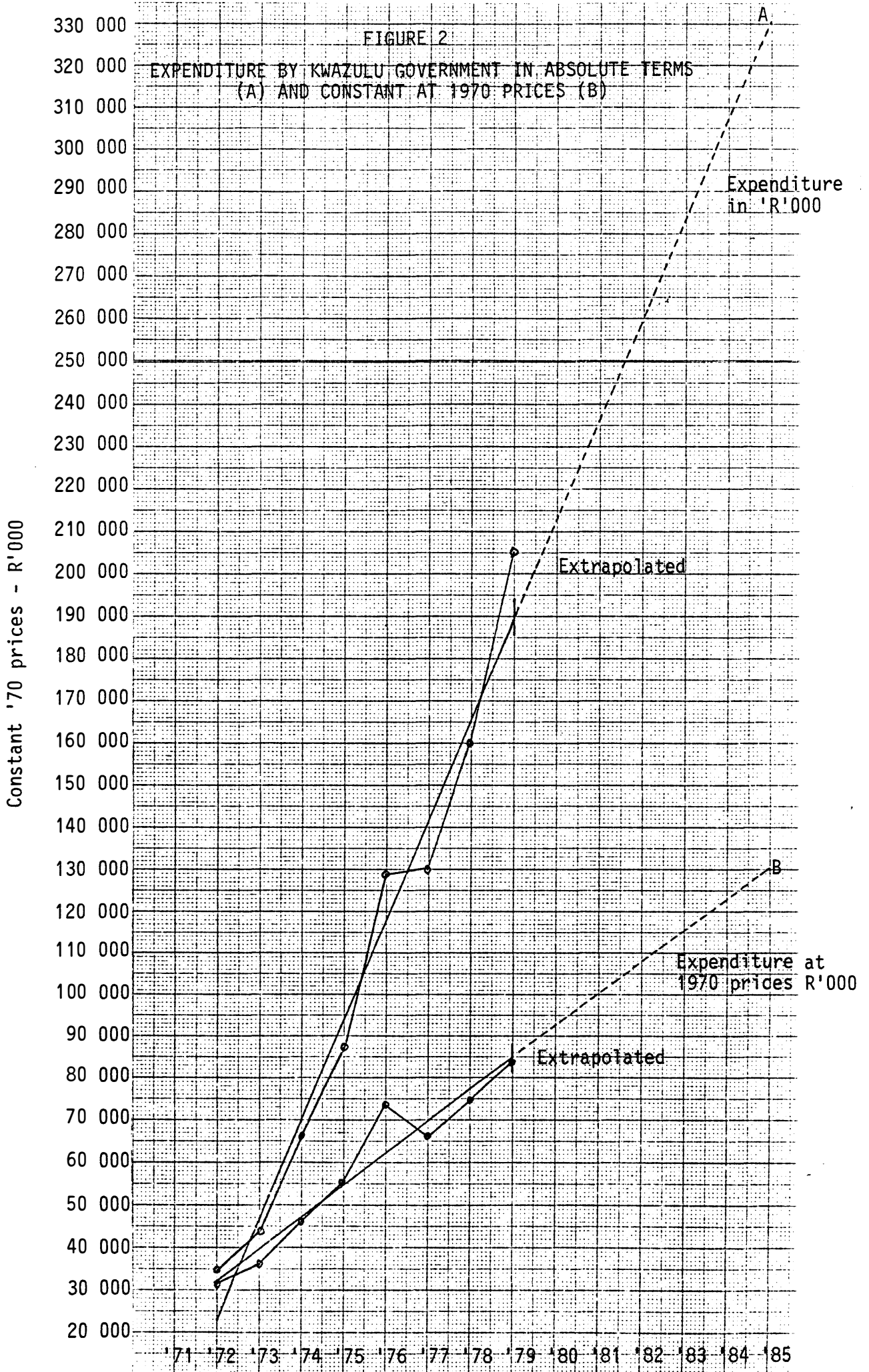
TABLE 2.1  
EXPENDITURE OF THE KWAZULU GOVERNMENT  
R'000

	Expenditure R'000	Constant at 1970 prices
1972/73	34775	30693
1973/74	44964	36232
1974/75	65829	47530
1975/76	87043	55371
1976/77	128108	73246
1977/78	128662	66184
1978/79*	159754	74097
1979/80	204602	83819

Source: BENS0

FIGURE 2

EXPENDITURE BY KWAZULU GOVERNMENT IN ABSOLUTE TERMS  
(A) AND CONSTANT AT 1970 PRICES (B)



The correlation between the actual value (Y) and the calculated value (Y') shown below Table 2.2 is high, which indicates that the straight line fitted to the historical data (1972-1979) describes the observed trend very well. Because the trend is rectilinear the annual growth rate will decrease over a period of time. The extrapolated trend (1980-1985) gives an annual growth rate of 7,5 % for the 6 year period as against the 23,3 % for the 7 year period 1973-1979.

Table 2.1 shows that expenditure of the KwaZulu government has in real terms increased rapidly over the period concerned. Figure 2 gives a graphic representation of the data in Table 2.1 as well as an extrapolation of the trend up to 1985. Should the rectilinear trend continue, expenditure will reach R130 000 000 (1970 prices) in 1985, an increase of R100 000 000 or 333 % in 13 years.

Table 2.2 and figure 3 show the expenditure (1970 prices) of the Department of Education and Culture for the period 1972/73 to 1978/79 as supplied by BENS0 and extrapolated to 1985/86. It must be borne in mind that this expenditure does not include the moneys spent by the Department of Works or the communities themselves.

TABLE 2.2  
EXPENDITURE OF THE DEPARTMENT OF EDUCATION AND CULTURE AT  
CONSTANT 1970 PRICES

Year <sup>1)</sup>	R'000	As % of total expenditure
1972	7710	25,1
1973	9200	25,4
1974	12070	25,4
1975	13048	23,6
1976	16670	22,8
1977	16809	25,4
1978	18303	24,7
1979	20293	24,2
1980	22375	24,2
1981	24178	24,1
1982	25981	24,1
1983	27784	24,1
1984	29587	24,1
1985	31389	24,1

Correlation between Y and Y' = 0,988

<sup>1)</sup>The data for the period 1980-1985 are based on a rectilinear extrapolation.

FIGURE 3  
EXPENDITURE BY THE DEPARTMENT OF EDUCATION AND CULTURE

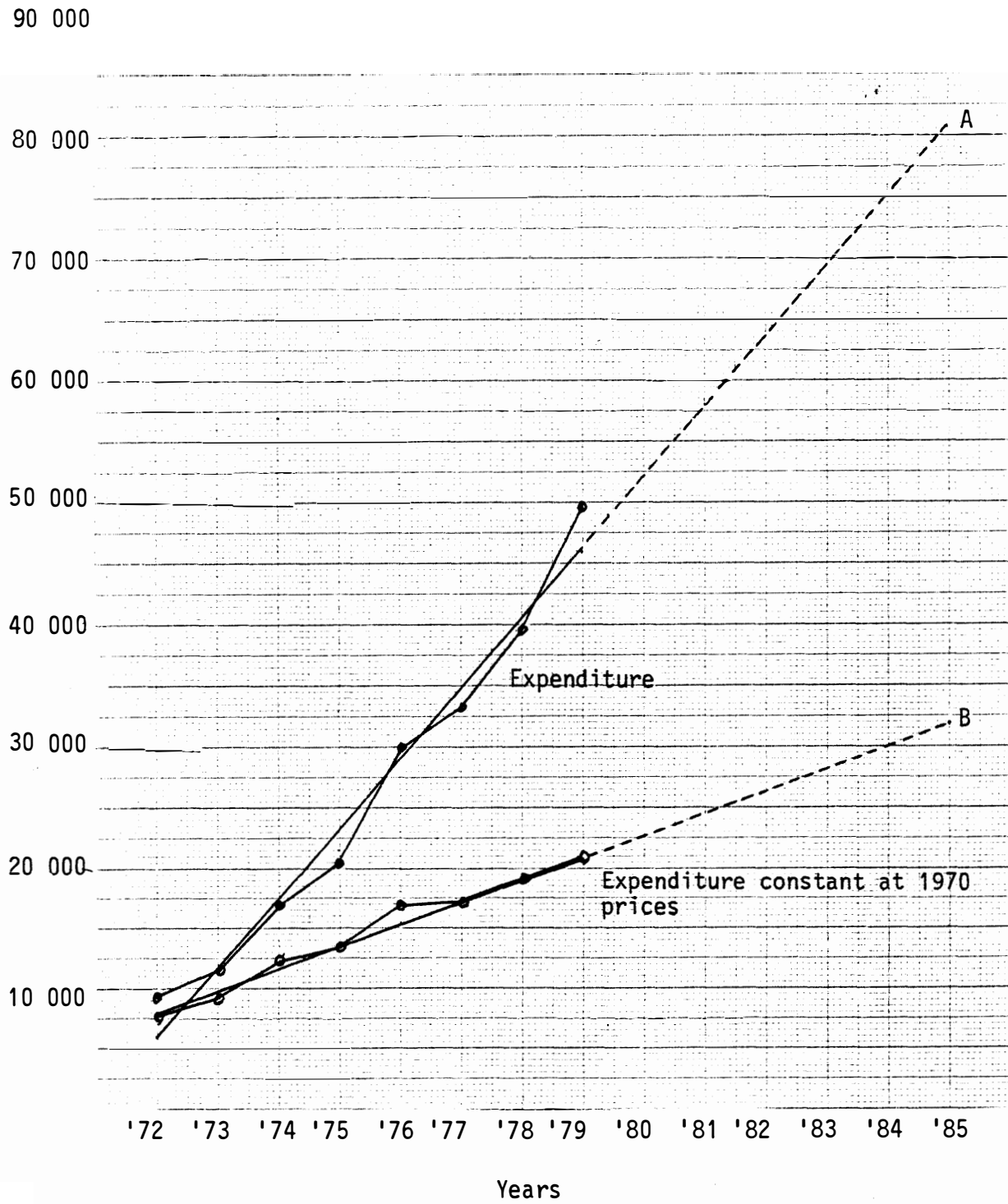




Table 2.2 shows that the expenditure of the Department of Education has remained reasonably constant at about 25 % of total expenditure.

### 2.3 POPULATION GROWTH, GROWTH IN SCHOOL ENROLMENT, AND THE SUPPLY OF TEACHERS

The population projections of Thorrington-Smith will be taken as point of departure (Thorrington-Smith, p. 289). The school population is a function of the total population in the younger age categories. Thorrington-Smith projects in 5-year categories and although an appreciable number of the school-going population is older than 19 years (Annual Report, 1978), it is accepted that the school population in the future will be a function of the 5-19 year olds in the population.

Table 2.3 supplies a projection of the 5-19 year olds in the KwaZulu population. An estimate of the total school enrolment is also supplied, based on the data supplied by the KwaZulu Government.

TABLE 2.3  
ESTIMATE OF TOTAL POPULATION (1972-1985) OF 5-19 YEAR OLDS  
AND TOTAL NUMBER OF ENROLMENTS

Year <sup>1)</sup>	Population (5-19)	Enrolment	Enrolment as % of population (5-19 years)
1972	1087400	469275	43,2
1973	1113100	510646	45,8
1974	1139300	564699	49,5
1975	1166200	601706	51,6
1976	1193600	630520	52,8
1977	1221800	710856	58,2
1978	1250600	773451	61,9
1979	1280000	830900	64,9
1980 <sup>1)</sup>	1310200	901100	68,8
1981	1341100	977200	72,9
1982	1372700	1059800	77,2
1983	1405000	1149300	81,8
1984	1438100	1246400	86,7
1985	1472000	1351700	91,8

Growth rates 2,4 8,4

Correlation between Y and Y' = 0,995

<sup>1)</sup>The data for 1980-1985 are based on exponential extrapolation

Table 2.4 gives the enrolment at primary, secondary and Std 10 levels for the period 1972 to 1978 with extrapolations to 1985.

TABLE 2.4  
TOTAL ENROLMENT IN PRIMARY, SECONDARY AND STD 10 LEVELS

Year <sup>1)</sup>	(a) Primary enrolment	(b) Secondary enrolment	(c) Std 10 enrolment	(d) Supply of teachers	(e) Pupil: Teacher ratio
1972	442785	26490	760	7750	57
1973	479844	30802	1017	8445	57
1974	529404	35295	1037	9446	56
1975	553957	47749	1556	10379	53
1976	553242	77278	1695	11667	47
1977	611931	99025	2481	13971	44
1978 <sup>1)</sup>	651334	122117	3259	15267	43
1979 <sup>1)</sup>	689770	161365	3875	17014	41
1980	732628	212472	4912	19109	38
1981	778150	279765	6227	21462	36
1982	826499	368370	7894	24105	34
1983	877853	485038	10008	27074	32
1984	932398	638656	12688	30409	30
1985	990320	840927	16084	34154	28

Growth rate: 6,2                      31,7                      26,8                      12,3

Correlation between  
Y and Y':    0,981                      0,986                      0,989                      0,995

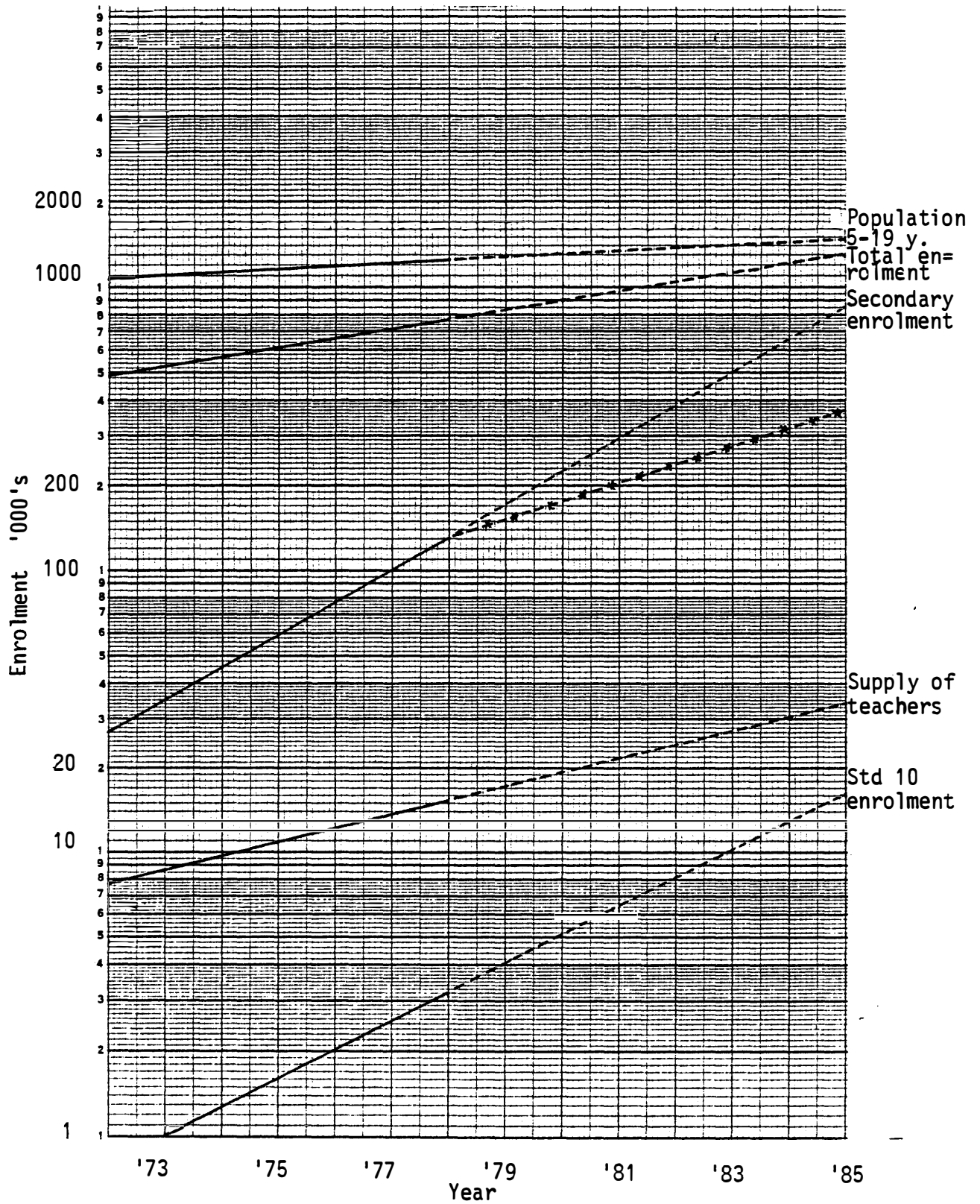
<sup>1)</sup> Data from 1979-1985 are based on exponential extrapolation.

The correlations between Y and Y' in Tables 2.3 and 2.4 show that the trend lines, all exponential in nature, fit the historical data very well. The data in Tables 2.3 and 2.4 are illustrated in Figure 4.

The relative increase in secondary enrolment is the most striking aspect on the educational scene in KwaZulu. Enrolment at secondary level grew at 31,7 % per annum and enrolment at Std 10 level with 26,8 %.

The question now arises whether these trend extrapolations can be regarded as forecasts of a real situation which will develop.

FIGURE 4  
 POPULATION GROWTH, PUPIL ENROLMENT AND SUPPLY OF TEACHERS



According to the extrapolation of total enrolment in Table 2.3, the number of pupils will increase from 773 400 in 1978 to 1 351 700 in 1985, an increase of 578 300 in 6 years, or roughly 96 000 pupils per annum. Accepting that present schools are filled to capacity and that new schools will be necessary to accommodate this increase, it would mean that 96 schools with a capacity of 1000 pupils each will have to be built annually. This means one school every 4 days. It would also imply that the teacher corps will have to be increased by at least about 2000 teachers per annum, with very little improvement in the pupil : teacher ratio.

It would appear that the extrapolations cannot be regarded as forecasts and that the exponential trend observed for the period 1972-1978 cannot continue. It may be concluded that a population growth rate of 2,4 per cent per annum outstrips any possible means of coping with the social demand for education. What is applicable to total enrolments is also applicable to the other exponential trends observed in Table 2.4. The growth in secondary enrolment will slow down. In 1978 secondary enrolment were 20,9 % of total enrolment. The trend extrapolation leads to a percentage of 62,2 % in 1985. This is also a totally unrealistic target. In the case of Whites 36,4 % of the pupils were enrolled at secondary level in 1977. The percentage for Std 10 enrolments were 5,6 %. (Department of Statistics, 1978). As compulsory education for Whites has a long history, these percentages would represent a upper limit for any target (-x-x-, Fig. 4). The exponential trends of the time series do show, however, that the Department Education and Culture has done very well in the past.

#### 2.4 PRODUCTION OF UNIVERSITY GRADUATES

University trained persons are mostly absorbed by the public and services sectors. In manufacturing, commerce, transport and communication, etc., the needs are relatively low. In Rosslyn, a mixed manufacturing area, employers stated that for a work force of 14862 in 1974 only 183 (1,2 %) employees were expected to be graduates (Herbst, 1975).

Table 2.5 gives a breakdown of the number of degrees and diplomas awarded by the University of Zululand for the period 1972/1978.

TABLE 2.5  
B DEGREES AND DIPLOMAS AWARDED BY THE UNIVERSITY OF ZULULAND

Field of Study	1972	1973	1974	1975	1976	1977	1978
Commerce and Admin.							
Degree	3	3	5	12	0	9	5
Diploma	1	1	0	2	0	1	0
Human Sciences and Language							
Degree	57	60	96	84	1	65	79
Diploma	7	12	8	8	0	11	10
Teaching							
Degree	2	7	2	11	0	9	5
Diploma	83	90	80	80	0	49	47
Law							
Degree	0	11	11	14	6	12	23
Certificate	7	17	33	28	0	2	26
Theology (Degrees)	0	0	0	0	0	4	3
Natural Science	5	3	14	10	0	5	11
TOTAL	165	204	249	249	7	167	209

The data in Table 2.5 point towards two main problem fields in the general supply of the highly trained manpower in KwaZulu, namely in Commerce and Science. In these fields the production is far too low to satisfy even the growing demand in the educational field.

With about 60 senior secondary and technical high schools in KwaZulu and only 5 teachers with a B.Com. and 25 with a B.Sc. in 1978 (Whites included) (KwaZulu Department of Education and Culture), the present production of especially B.Com. and B.Sc. degrees is totally inadequate to ensure a satisfactory level of education in two very important fields.

Table 2.6 shows the number of students by year of study at the University of Zululand for various fields.

Up to 1976 the first-year enrolments in all fields of study given in Table 2.6, showed a rising trend. This trend was interrupted by the 1976-disturbances and has not yet again reached the 1976 level. From Table 2.6 it can be deduced that the number of B.Com. and B.Sc. graduates cannot be expected to increase markedly until 1981 at the earliest.

TABLE 2.6

ENROLMENTS FOR DEGREES BY YEAR OF STUDY AT THE UNIVERSITY OF ZULULAND

Field of Study	Year of study	1973	1974	1975	1976	1977	1978
Commerce and Admin.	1	58	64	65	106	41	54
	2	21	25	29	41	19	27
	3	9	11	22	20	13	15
Human Sciences and Languages	1	125	145	111	199	197	197
	2	119	112	139	131	83	129
	3	78	107	95	117	73	89
Law	1	39	60	61	92	94	84
	2	32	29	54	43	20	60
	3	28	23	26	43	20	22
	4	7	18	10	16	5	16
Natural Science	1	56	63	80	134	106	112
	2	16	18	21	31	22	28
	3	4	13	13	12	8	14

CHAPTER 3  
THE MANPOWER SITUATION IN SELECTED OCCUPATIONS

3.1 INTRODUCTION

KwaZulu has two main problems, manpower wise. The most serious problem is the lack of job opportunities for a big and largely unskilled or semi-skilled labour force. This is an important social problem, but places no special demands on the training facilities of the Government. As has been shown in the introductory chapter (Table 1.2) most of the people working in the manufacturing sector outside KwaZulu are employed as operators and labourers. Training for these occupations is not a government function but an employer one. Employment in the commerce sector follows the same pattern. Clerks and salespeople, given a certain basic level of education, are trained by employers.

The second manpower problem is one of shortages. There are clearly not enough trained teachers in KwaZulu, for example. This chapter deals mainly with those occupations in which the Government has a training or educatory role to play. The data on which the analyses are based come mainly from surveys inside KwaZulu only.

It is appreciated that the number of KwaZulu citizens working outside KwaZulu, outnumber those working inside. BENS0 estimates the number of commuters in 1976 at 326 000 (BENS0, 1979). Although relatively small numbers of these people occupy posts for which post-school formal training is necessary, the changing labour scene in the RSA will lead to a greater absorption in the future. It is not possible at the moment to estimate the size of this absorption and any estimate of demand in this chapter, must be regarded as an estimate of minimum demand.

3.2 MEDICAL AND HEALTH OCCUPATIONS

3.2.1 *Introduction*

The determination of the level of medical services to be provided for a population cannot be done on a scientific basis. The answer can only be provided on the basis of some value judgement of what should be.

This judgement will, however, be influenced by available resources and how these resources should be shared among the many services that can or must be supplied. Medical services in KwaZulu are almost entirely provided by the government and paid out of public funds.

Table 3.1 shows the expenditure on health services of the RSA Department of Health up to the year 1977/78 and by the KwaZulu Government for the years 1978/79 and 79/80 as supplied by BENS0.

TABLE 3.1  
EXPENDITURE ON HEALTH SERVICES, R'000

Year	Actual	Constant at 1970 prices	As % of total expenditure
1970/71	11419	11419	
1971/72	14157	13305	
1972/73	14135	12475	40,6
1973/74	17086	13768	38,0
1974/75	21996	15881	33,4
1975/76	23419	14897	26,9
1976/77	26063	14919	20,4
1977/78	30392	15634	23,6
1978/79	33532	15552	21,0
1979/80	41214	16884	20,1

The 1978/79 and 79/80 figures have been calculated by subtracting the funds spent on social pensions and adding the amount supplied by the RSA Department of Health.

There is a rising trend in the expenditure on health services. This trend (fitted by means of a least squares equation) is shown in Figure 5. The trend shows an annual increase for the period 70/71 to 79/80 of 3,6 %. Table 2.3 shows, however, that the expenditure on health services as percentage of total expenditure tended to become smaller, dropping steadily from 40,6 % in 72/73 to 20,1 % in 79/80.

The above is the background against which the manpower situation must be judged.

### 3.2.2 *The personnel position in 1978/1979*

The KwaZulu Department of Health and Social Welfare supplied the information contained in Table 3.2.



FIGURE 5  
EXPENDITURE ON HEALTH SERVICES R'000 AT 1970 PRICES

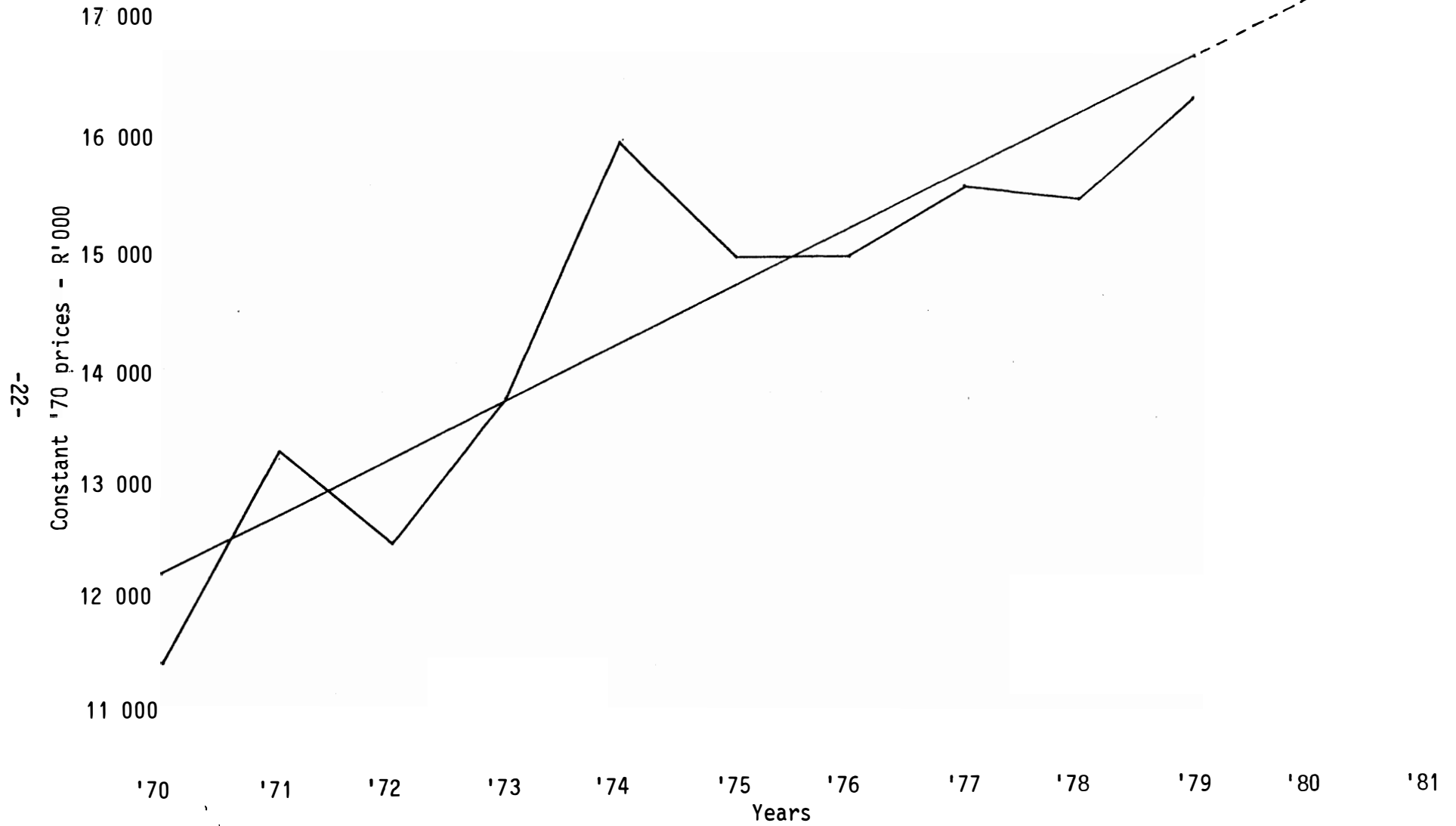


TABLE 3.2  
JOB OPPORTUNITIES IN MEDICAL AND HEALTH OCCUPATIONS IN KWAZULU 1978,  
GOVERNMENT SECTOR

Occupation	Present job opportunities							
	Black		White		Other		Total	
	M	F	M	F	M	F	N	%
Medical specialist			67				67	1,3
General practitioner	3		193				196	3,9
Dentist			1		7		8	0,2
Pharmacist	3		29				32	0,6
Nurse		2289					2289	45,9
Trainee nurse		2267					2267	45,4
Physiotherapist		3		15			18	0,4
Occupational therapist		2					2	0,0
Medical Technician	1		110				111	2,2
TOTAL	7	4561	400	15	7		4990	100

The Department of Health of KwaZulu could not supply data about the existing vacancies because they were just taking over from the RSA Department of Health. In a survey on health occupations conducted by the Institute of Manpower Research in 1979, information about vacancies were received from 27 hospitals and other institutions employing health personnel in KwaZulu. The information received is tabulated in Table 3.3.

Most of the doctors in KwaZulu are still White and there were only three Black doctors working in the Government sector. The same situation applies for pharmacists and medical technicians. Given the number of vacancies, the conclusion is that the training of doctors, technicians and pharmacists should receive special attention. The medical school of the University of Natal produced 81 Black doctors during the period 1975-1978 (Annual Reports of the Department of National Education). It is obvious, therefore, that few Black doctors consider taking employment within the Government sector of KwaZulu.

The situation with regard to nursing personnel seems to be much better. The vacancies were negligible regarding all categories and the conclusion is, therefore, that the supply seems adequate so that some selection can take place to ensure that the dropout rate is as low as possible.

TABLE 3.3  
FILLED POSTS AND VACANCIES IN 27 KWAZULU HOSPITALS AND INSTITUTIONS

Occupation	Number of posts		Vacancies	
	(a) 1975	(b) 1979	(c) 1979	c as % of b
Medical specialist	35	45	15	33,3
General practitioner	142	145	39	26,9
Intern	39	39	4	10,2
Reg. nurse and midwife	898	1063	48	4,5
Health nurse	11	24	1	4,1
Trainee nurse (student and pupil)	987	895	4	0,4
Nurse (enrolled)	625	682	4	0,6
Nursing assistant	558	621	5	0,8
Pharmacist	12	14	4	28,6
Physiotherapist	11	14	2	14,3
Occupational therapist	3	9	2	22,2
Diagnostic radiographer	24	27	6	22,2
Social worker	2	4	2	50,0
Medical technician	7	83	12	14,6
Other technician	4	5	-	-
<b>TOTAL</b>	<b>3358</b>	<b>3670</b>	<b>148</b>	<b>4,0</b>

The number of student- and pupil nurses to be enrolled each year to keep the nursing corps on a certain strength can be easily determined by the KwaZulu Department of Health if the necessary statistics are available.

These would be the following:

- (a) *Statistics required to estimate the inflow of qualified registered nurses*
- (i) Number of students in each year of training.
  - (ii) Number of dropouts during each year of training.
  - (iii) Number of passes and number of failures.
  - (iv) Number of re-entries during the year.
  - (v) Number of the qualified nurses joining labour force in the following year.

From the above, (i) tot (iv) is supplied to the SA Nursing Council each year and (v) will be the most difficult to determine.

- (b) *Statistics required to estimate the outflow of qualified registered nurses*
  - (i) Number of registered nurses at the beginning of year.
  - (ii) Number of registered nurses joining nursing corps during the year *by years of experience*.
  - (iii) Number of registered nurses leaving the nursing corps during the year.

### 3.2.3 *Increase in job opportunities*

The increase in job opportunities depends on the increase (in real terms) in the amount spent on health services. Figure 2 shows that there is a rising trend in expenditure in real terms. According to Table 3.1 expenditure on health services reached R15,5 m in 1978/79. According to Table 3.2 there were 5136 job opportunities in the health services field. This means an average of R3028 (at 1970-prices) per job opportunity.

The survey on health occupations showed that, in respect of the institutions covered, job opportunities increased from 3358 to 3670 (1975-1979). If what happened in these institutions reflects the situation in the entire health field, the conclusion can be made that the 1970-price per job opportunity remains reasonably constant. Table 2.2 shows that the percentage of the national expenditure spent on health services has shown a declining trend, from 40,6 % in 72/73 to 20,2 % in 79/80.

If the trend of the past continues, KwaZulu's expenditure will reach R130 000 000 (1970-prices) by 1985, an increase of R45 000 000 for the six-year period 1979-1985 or roughly R7,5 m per annum. If the expenditure on health would stabilize at 20 % of the expenditure it would mean that about R1,5 m will be available for health services. In terms of R3028 per average job opportunity this implies 495 job opportunities per annum.

These job opportunities would then be distributed as shown in Table 3.4 (col. 1).

TABLE 3.4  
ANNUAL INCREASE IN JOB OPPORTUNITIES

Occupation	(1)	(2)
Medical specialist	6	2
General practitioner	19	6
Dentist	1	5
Pharmacist	3	1
Nurse	220	73
Trainee nurse	218	72
Physiotherapist	2	1
Occupational therapist	1	-
Medical technician	11	3
Other paramedical	14	4
TOTAL	495	167

Since the declining trend in national expenditure on health (See Table 3.1) figure 2 shows an increase of about R0,5 m per annum (1970 prices) with the resultant job opportunities as shown in column 2 of Table 3.4, the increase of 167 jobs annually means an increase of about 3 % in the labour force annually, which is slightly more than the estimated population growth of KwaZulu and it would therefore mean that the present level of health services could at least be kept at the present level. In terms of the projections the latter increase would mean that the percentage of national expenditure spent on health services would reach about 15 % in 1985.

It does not seem possible that the 495 annual increase in job opportunities is feasible if the occupational structure in the health occupations remains unchanged. Given vacancies of at least 15 and 39 medical specialists and medical practitioners in 1978 an annual increase of 6 and 19 respectively seems an unrealistic goal. The number of doctors determines to a great extent the sensible application of nurses in the present medical set-up. Even 2 and 6 will be difficult to reach (column 2, Table 3.4).

In the IMN survey the number of beds required and the occupancy rate were determined. In the institutions that responded, the average occupancy rate was in excess of 100 %. According to information received from various hospitals, it was regarded that if the occupancy rate reached 88 %, the hospital was working at full capacity. There were a few institutions in KwaZulu who had an occupancy rate below 88 %.

From this may be deduced that there is a demand for hospitalization that cannot be met. Given the manpower situation and the shortage of doctors which can hardly be met, it is obvious that the solution of the situation lies in the active extension of clinic facilities.

### 3.3 ENGINEERS, TECHNICIANS, AGRICULTURISTS AND ARTISANS

#### 3.3.1 *Introduction*

The occupations mentioned in the heading are prime movers in economic development. The availability of personnel in these occupations is, therefore, very important. In a developing country the artisan group is of special importance. It is from this group that many of the future entrepreneurs in the manufacturing sector and services sector should come to the fore. In the RSA, as in other countries, a large number of concerns are still small. In the Rosslyn Industrial area there were 89 factories in 1974. Of these 32,6 % had less than 40 employees. Only 4,5 % had 500 or more employees. Many of these small concerns were started by people who had an artisan background.

#### 3.3.2 *The employment situation in respect of engineers, agriculturists and technicians*

Table 3.5 gives the employment situation of engineers, agriculturists and technicians in the public as well as in the private manufacturing sector, as determined in the HSRC 1978 survey. Included in the public sector are the job opportunities created by the KwaZulu Development Corporation.

Job opportunities offered by private building and construction concerns are not included since no special survey has been undertaken. From the HSRC survey on job opportunities in KwaZulu (Wolmarans, 1974) it was clear that most of the work being done by the private sector in building and construction was done on behalf of the public sector. Table 3.6 shows the demand for engineers and technicians in November 1973 in the private building and construction sector.

TABLE 3.5  
PERSONNEL POSITION FOR ENGINEERS, AGRICULTURISTS AND TECHNICIANS

Occupations	Number of posts				Total		
	Public sector		Private sector		Total job opportunities (a)	Vacancies as % of (a)	
	Posts		Posts				
	Black	White	Black	White	Vacant		
Engineers:							
Civil		12	3			15	20,0
Electrical	1	2	1			4	25,0
Agricultural		1	1			2	50,0
Other		11	4			15	26,7
Surveyors		5	7			12	58,3
Agriculturists and extension officers	204	27	178			409	43,5
Technicians:							
Engineering	3	29	32	6	1	71	46,5
Draughtsmen	6	12	23			41	20,5
Chemical				2	4	6	66,7
Agricultural	74	23	76	12	10	195	44,1
Inspecting				1		1	
Surveying	11	8	21			40	8,9
Other		2	3			5	60
TOTAL	229	132	349	21	15	816	

TABLE 3.6  
JOB OPPORTUNITIES FOR ENGINEERS AND TECHNICIANS IN THE PRIVATE BUILDING AND CONSTRUCTION SECTOR OF KWAZULU 1973

Occupation	Black	White	Total
Engineer	-	4	4
Surveyor	-	3	3
Quantity surveyor	-	1	1
Technician	-	1	1
TOTAL	-	9	9

Table 3.6 shows that the private building and construction sector employs a negligible number of engineers and technicians. Only 9 (0,2 %) of the 3996 job opportunities in the private building and construction sector were for engineers and technicians. Most of the planning, draughting etc. was done at the head offices of the various building and construction firms.

The manufacturing sector also employs only small numbers of engineers and technicians as can be deduced from Table 1.2.

Although the occupational structure is greatly influenced by the specific kind of predominant industry, (e.g. Ladysmith by textiles and clothing) no great demand exists for engineers and technicians. The labour situation for artisans will be discussed in the next paragraph, but it can also be pointed out here that certified artisans form but a small part in the total labour complement.

The key role of these occupations in economic development cannot be ignored but the kind of role played, must also be acknowledged. The engineer and the technician play their main role in planning and developing and the artisan his in construction and maintenance.

The managers, clerks and operators are mainly responsible for daily production. The absence of qualified engineers and technicians in the labour force should, because of the limited numbers required, be no drawback in the development of a strong manufacturing sector, since by far the largest number of workers are operators and labourers who can be trained inhouse. The employers in the three growth points required only a basic ( $\pm$  Std 2) formal education for most of their operators and no formal education for their labourers.

However, the situation is critical in the public sector. Most of the engineers and technicians are employed by the Department of Agriculture and Works. They cannot farm out all their work and must retain a supervisory and planning capacity. The reported vacancies in terms of job opportunities are tremendous. The public sector needs personnel in nearly every field (Table 3.5).



Special attention should be paid to the situation of the Department of Agriculture. According to Table 3.5 they need 178 extension officers. The role of agriculture in the development of underdeveloped areas can hardly be over-emphasised and it is well documented in development literature. From this primary sector the secondary sector is stimulated. The development of Taiwan is a good example in recent history. Where Tanzania's, Uganda's and Zambia's development lagged in correlation with the retrogression in agricultural development, Taiwan's secondary industry boomed because, inter alia, the country could feed itself. It was therefore unnecessary to spend scarce capital to support such a basic need. The training of sufficient agricultural extension officers is of prime importance. With the number of vacancies running at 178 it is useless to speculate about future demand. Should the Makatini-flats be used for casava cultivation for the manufacturing of Ethanol, this need will increase considerably. The manufacturing of Ethanol as such will (as in the case of most chemical industries) be highly capital intensive. Most of the job opportunities will be created in the agricultural sector. The success of such a venture will therefore, manpower wise, depend, not on the engineers, but on the farmers.

Manpower planning with regard to engineers and technicians can be based solely on demands of the public sector. It is clear from the vacancies that training in this field should be expanded. In view of the changes on the labour scene in the Republic, an unknown number of trained technicians will work outside the borders of KwaZulu, but they cannot be quantified at the moment.

### 3.3.3 *The employment situation for artisans*

Table 3.7 shows the employment situation for artisans in the public sector as determined by the 1978 survey.

There is a relatively small demand for artisans in the metal and engineering trades in the public sector, and these trades will again be referred to when the demands of the private sector are discussed. Table 3.7 indicates a great demand for tradesmen in the electrotechnical, building and diverse trades. The demand for electrotechnical and building trades

is generated by the Department of Works. The demand in the diverse trades is caused by the demands of mainly the Departments of Agriculture and Health. Artisans in the motor trades are mostly employed by the KDC's transport company.

TABLE 3.7  
PERSONNEL POSITION FOR ARTISANS AND APPRENTICES IN THE PUBLIC SECTOR

Trade	Filled posts (a)		Vacancies (b)	Job opportunities (c)	(b) as % of (c)
	Black	White			
Metal and engineering	2	27	-	29	-
Electrotechnical	32	43	258	333	77,5
Motor	94	81	-	175	-
Building	67	106	388	561	69,2
Diverse trades	83	27	142	252	56,3
TOTAL	278	284	788	1350	58,4

The private sector adds to the demand depicted in Table 3.7. The manufacturing sector employs mainly artisans in the metal and engineering trades. In all, there were 175 posts, mainly for welders in the 34 factories surveyed. The demand for workers in the more sophisticated metal and engineering trades, such as fitters, turners, millwrights, instrumentmakers and grinders, is still small and the future demand will depend on the kind of industry that can be attracted to KwaZulu.

According to an estimate of the KDC, based on its own extensive experience in passenger transport, private transport companies in KwaZulu could employ about 250-270 mechanics, although use would be made of facilities outside KwaZulu. Private garages had increased from 3 in 1969 to 23 in 1978 and, according to the general employment pattern, employ about 30 mechanics. In 1969 there were 2561 job opportunities in the private sector's building and construction activities. These activities were financed almost exclusively by various public sector agencies. Of the 2561 job opportunities, 160 (6,2 %) were for certified artisans and 191 (7,5 %) for non-certified artisans. These ranged across the board and covered all the building trades, but job opportunities for bricklayers, plasterers, carpenters and plumbers were more plentiful. According to figures supplied

by BENS0 the number of job opportunities in the private sector's building and construction activities numbered 5300 in 1980.

From the above it is clear that there is a good demand for artisans, especially in the building, electrotechnical and motor trades, and training in these trades should receive priority.

In the discussion of the construction sector (Towards a plan for KwaZulu, p. 124) it is stated that urbanisation of the population will take place at a high rate and it is estimated that housing stock will have to be doubled every 8 years. Added to this is the civil engineering work required to expand the infra-structure. All this work is going to need artisans. It may therefore be concluded that the demand for artisans in the building trades will continue to be high. Ways and means of persuading contractors working in KwaZulu to make a contribution to training, must be examined.

Whatever the type of house to be built, the idea of the KDC for it to have a local content should be pursued further. The technology to make bricks, door jambs and window frames is unsophisticated and very suitable for even small factories which can supply specific areas. These enterprises would have a small training input but provide some of the much needed job opportunities. The market for wooden window and door frames in the coastal areas could also be examined.

The diverse trades listed in Table 3.7 need some explanation. These artisans are mostly employed by the Departments of Agriculture and Health. Because of the nature of the work, these departments need personnel with a really broad skills-spectrum. The work may not require great technological skill. In view of the great need, particularly of the Department of Agriculture, a training course for factotums, geared to the needs of these Departments, could be considered. Many of the artisan posts are still filled by Whites, especially in the foreman categories. The shortage of certified and fully trained artisans make the traditional form of artisan training difficult, and a much more formal system of training should be considered. It is noted that The Apprenticeship Act was passed in 1978. As already stated the population growth rate and the expected increase in

urbanisation will lead to a high demand for tradesmen in the building and electrical trades. Many of the jobs these artisans have to do, are not very complicated and the training system of KwaZulu should take the demands of the jobs into consideration. A training system in which an apprentice could, by means of a tiered testing system, reach full artisan status, must receive serious consideration. In a study on the job opportunities created by building and construction activities in KwaZulu (Wolmarans, 1973) it was found that many of the artisans employed were non-certified. Of the 775 bricklayers and plasterers employed at that time, only 25 % were certified artisans. Table 2.8 also shows that about half of the tradesmen employed in private industry are classified as non-certified artisans. This category is actually a contradiction in terms because the name artisan implies certification. This classification was necessary, however, because a large number of persons were doing work, although only in part, that was traditionally the job of the fully qualified artisan. The existence of these workers, which has developed from the work situation itself, shows that a tiered training system could make sense. When a specific training system becomes ingrained in a society it is very difficult to change it. The training system in KwaZulu must be geared to the demands of KwaZulu.

#### 3.4 MANAGERIAL, CLERICAL AND SALES OCCUPATIONS

Personnel in clerical and sales occupations usually receive in-service training, and the government's contributions to providing the private sector with these types of personnel usually stops with the offering of the necessary formal education of a sufficiently diverse nature. For the Government of KwaZulu, as for other Governments, the intake into the clerical ranks is of great importance. It is from the clerical ranks that the administrators and government executives of the future are going to develop. The importance of an efficient and corruption-free public service in development, needs no elaboration. Although most of the actual occupational training is done on an in-service training basis, the government's needs are the reason for the inclusion of these occupations in this report.

Table 3.8 shows the position for the occupations concerned in the public and private sectors of KwaZulu. The situation in the private sector includes an estimate for the commercial sector based on the number of operating licences. Obviously no estimate of any vacancies could be made.

TABLE 3.8  
PERSONNEL POSITION FOR MANAGERIAL, CLERICAL AND SALES OCCUPATIONS

Occupations	Public sector				Private sector	
	Black	White	Va= can= cies	Vacancies as % of job oppor= tunities	Black	White
Directors		7				4
Secretary of State Depart= ments	1	11				
Personnel managers	7	5			12	
Other managers	19	25	1	2,2	1806 <sup>1)</sup>	64
High executive posts	14	26	5	11,1		
Admin officers	75	51	19	13,1	4	2
Other secretaries		18	2	11,1		
Clerical workers	1860	154	399	16,5	374	20
Bookkeepers	2	19	4	16,0	27	19
Cashiers	134		27	20,1		
Typists	85	14	16	13,9		20
Salesworkers	62	7	1	1,4	6300	
TOTAL	2259	337	474		8523	129

1) Includes 1710 working owners

Table 3.8 shows a vacancy rate of 16,5 % for clerks in the public sector. Many of the clerks join the public service with only a Std 8 qualification. As the number of Std 10 school leavers increase, efforts should be made to attract more matriculants to the service.

Efforts should also be made to attract university graduates to the public service to fill administrative posts. Special attention should be paid to the in-service-training of all capable recruits. Training, not production, should be the mainspring in these cases and the selection of a small but elite group of administrative trainees should be considered. The importance of the public service in development and concomitant career possibilities in the service should be brought to the notice of school pupils.

### 3.5 LEGAL OCCUPATIONS, POLICE AND PRISON STAFF

#### 3.5.1 *Legal occupations*

The information supplied in Table 3.9 depicts the situation in the public sector only. No attempt was made to determine the demand for lawyers and advocates in the private sector.

TABLE 3.9  
OCCUPATIONAL SITUATION IN THE PUBLIC SECTOR

Occupation	Occupied posts		Vacancies	Total
	Black	White		
Judge			3	3
Advocate			2	2
Lawyer			1	1
Magistrate	37	42	26	105
Legal adviser			1	1
Legal assistant	39		9	48
State Prosecutor			2	2
Other legal occupations			9	9
TOTAL	76	42	53	171

Table 3.9 shows that the Department of Justice has a big training task ahead. Twenty six (24,7 %) of the magistrate posts and 9 (18,7 %) of the posts for legal assistants were vacant. Other personnel needs were not satisfied at all.

In the legal occupations experience is necessary before a person can function efficiently and it will be some time before the newly-qualified are able to function as magistrates.

In Table 2.5 the number of degrees and certificates awarded by the University of Zululand is shown. When the production figures in Table 2.5 are compared with the personnel position in Table 3.9, it is obvious that the Department of Justice is losing personnel to the private sector.

Police and prison warders place no post-school training load on the KwaZulu government at present. These occupations generate job opportunities, and in 1980 there were 795 Black policemen and detectives and 269 Black prison warders in KwaZulu.

As the educational level of the population rises, the police corps will expectedly draw more matriculants to its ranks. At the moment the highest ranking officers in KwaZulu are Captains. No information about vacancies in the police force could be obtained. In the case of prison warders 17 (6,3 %) of the 269 posts were vacant.

## CHAPTER 4 SYNOPSIS AND CONCLUSIONS

### 4.1 INTRODUCTION

In the absence of an economic plan with relatively clear sectorial growth targets, no attempt has been made either to estimate manpower demand and supply for some future target year or to quantify shortages or surpluses. An analysis of the present manpower situation shows that such an exercise, which has a very large data appetite, would to a large extent be pointless. The manpower situation in KwaZulu reflects that of South Africa as a whole, i.e. shortages of skills in some areas and a very serious lack of job opportunities for the unskilled and semi-skilled. Given the present rate of population growth, the economic potential of the RSA cannot supply job opportunities in the formal sector for all the economically active - not now, and not in the future. This is the clear message of the new Economic Development Programme of the Republic. (Economic Development Programme for the Republic of South Africa 1978-1987). What applies for South Africa also applies for KwaZulu. It is not always generally recognized to what extent South Africa shares the Third World's problems in this regard. Because of the unemployment problem, every possible means of creating job opportunities should be investigated.

The aim of this study is to analyse the present manpower situation in KwaZulu and to highlight the present training needs. Because the public sector (which includes KDC), is the main employer of people with post-school training, special attention is paid to the demands of the public sector.

The data used in this study were obtained by means of field surveys (1978) in the public and manufacturing sectors. Older surveys were used to supply additional information.

### 4.2 PRODUCTION OF THE EDUCATIONAL SYSTEM

As a background to the analyses in the report, the educational scene in KwaZulu was discussed briefly. In this discussion (Chapter 2) it was pointed out that the population and school enrolments grew at an exponential trend in the past. It is highly unlikely that this trend can



continue even up to 1985, and the social demands for education seems to outstrip the capacity of KwaZulu to meet this demand. The Department of Education and Training has succeeded in increasing the number of enrolments across the board. The number of Std 10 enrolments have increased from 760 in 1972 tot 3259 in 1978, which gives a growth rate of 26,8 % per annum. Secondary enrolment has increased even more sharply, i.e. at the rate of 31,7 % per annum to reach 122 117 in 1978. The educational base of the population has broadened and the numbers available for post-school training of a high level, e.g. artisans, technicians, diplomates and graduates have improved tremendously. Although the number of graduates cannot be expected to increase up to 1981 because of a static enrolment at first year level, the foundation for an increase thereafter has been laid. The increase in the number of Std 10's should also lead to an eventual improvement in the qualifications of the teachers, which in turn should have an influence on the standard of teaching. This will affect the cost of teaching, as teachers' salaries are influenced strongly by the qualification level.

#### 4.3 MEDICAL AND HEALTH OCCUPATIONS

Medical services in KwaZulu rely very heavily on what is supplied by the government. The government's expenditure shows a rising trend in real terms and has increased from R11,4 m in 1970 to R16, 8 m in 1979/80 at 1970 prices.

The greatest shortages in the medical field are for medical specialists and general practitioners. It is clear from the production figures of the University of Natal that most of the qualified medical practitioners turn to private practice which results in the shortages indicated. The situation with regard to nurses seems well in hand. The number to be trained can be estimated if the necessary statistics are available. It is recommended that these statistics be supplied to the Department of Health which can then determine the size of the annual intake. With the increase in secondary education it could well happen that there will be more applicants than vacancies.

It seems unlikely that the situation with regard to doctors will improve in the foreseeable future.

The occupancy rate of hospitals shows that they are working at full capacity. The active extension of clinic facilities rather than hospitals needs careful consideration.

#### 4.4 ENGINEERS, TECHNICIANS, AGRICULTURISTS AND ARTISANS

Personnel in the above occupations are mostly employed by the public sector, i.e. Departments of Works and Agriculture and KDC. Private construction firms also employ artisans but very few engineers and technicians, as most of the planning and development work is done at the main offices.

##### 4.4.1 *Engineers*

Only a small number of engineers is employed. The number required in KwaZulu will not increase dramatically during the next five or so years, and the training facilities outside KwaZulu should be used for training of engineers. The engineer is, however, a key figure in the development of the necessary infra-structure and at the moment there is only one Black engineer in KwaZulu. Students with the necessary ability and who obtain high marks in mathematics and science (80 % and above) should be encouraged to take up engineering.

KwaZulu will become steadily more urbanized, and the building of towns and cities will demand a lot of civil engineering work.

##### 4.4.2 *Agriculturists and Agricultural technicians*

The importance of agriculture in development is well-known and well-documented. According to the information received from the Department of Agriculture and Forestry, the need for personnel in all fields is high.

The large number of vacancies may be the reason why the approved budget usually allows for more than the sum which was actually used. It will be difficult to attract agriculturists from the RSA since they are in short supply. With the number of Std 10's on the increase, it should attract more students with adequate education to the training institutions.

Should large development projects be undertaken, such as the production of casava, the manpower situation will become even worse. In situations like these it is sometimes a temptation to opt for production and mechanisation. This is a temptation that must be resisted at all costs because of two reasons. In the first instance, KwaZulu needs every possible job opportunity, and secondly, if people are not actively involved in the production process they lose interest and the whole scheme has very little value for community development. It has been reported that in some of the maize growing areas where such schemes have been tried, some plot owners do not even turn up at harvest time, but trust the cooperative to do the book-keeping and send the remainder along. It must also be remembered that in the case of casava cultivation for ethanol production, the ethanol plants will, as in the case of most chemical industries, not be labour intensive.

Training of personnel in agriculture should be one of the priorities of KwaZulu.

#### 4.4.3 *Engineering technicians and draughtsmen*

The technician occupation is a fast growing one in the RSA. The posts in KwaZulu that are vacant outnumber those that are filled. Like the engineer, the technician has an important role in creating the infrastructure. Technician training should therefore also be one of the priorities. The numbers required at present are not very large but can be expected to increase. With the shortage experienced in the RSA, and given the changing labour situation in the wake of the South African Government's acceptance of most of the recommendations of the Wiehahn and Riekert Commissions, it may be expected that KwaZulu will lose some of its trained technicians, and the rate may increase in future, especially if wage differentials exist inside and outside KwaZulu.

#### 4.4.4 *Artisans*

It has been indicated in chapter three that there is a clear demand for artisans in KwaZulu at the moment and that this demand could be expected to continue. As a result of the present economic activity,

this demand is mainly for building workers, electricians and motor mechanics. The demand for the more specialized skills in the metal and engineering trades is limited, and the future demand will depend on the kind of industry that KwaZulu can attract. As in the case of technicians, the changing labour situation in the Republic could cause an increase in the number of artisans absorbed in the general economy. The existence of a large corps of non-certified artisans (a contradiction in terms) which has developed as a result of the work that has to be performed, indicates that the traditional system of apprenticeship training may not be very suitable for the KwaZulu situation. A formal modular-system, with a tiered testing system, should be seriously considered.

A training system for factotums to satisfy the needs of the departments of Agriculture and Health should be considered because personnel with the broad spectrum of required skills are not usually produced by experience alone.

The supply of school leavers who have had at least some secondary education is increasing rapidly, and the supply of suitable apprentices should therefore also increase. The importance of artisan training in the eventual supply of much needed industrial entrepreneurs, must not be overlooked. The training of artisans should be regarded as one of KwaZulu's important priorities. The estimates of the size and the fields of the intakes can best be determined by the needs of the public sector which in turn can easily be determined on an annual basis.

#### 4.4.5 *Managerial, clerical and sales occupations*

Most of the personnel in these occupations receive in-service training. For the public sector the intake of suitably qualified personnel is of great importance, since the quality of the administrators and executives of the future depend on the quality of the intake. The selection and training of a suitable number of talented youths for careers in the public service should be considered.

#### 4.4.6 *Legal occupations, police and prison staff*

As in all the other job categories for which training after some secondary education is necessary, there is a steady demand for both

diplomates and graduates. The numbers needed for the police and prison staff will increase at the same rate as the population.

#### 4.5 CONCLUSIONS

4.5.1 This analysis of the manpower situation in KwaZulu has focused on only one of the manpower problems of KwaZulu, namely the lack of trained manpower for which some kind of post-school training is necessary. Since the public sector is by far the most important employer of such manpower, the analysis mainly highlights the demands of the public sector and by doing so, illustrates what is probably well-known to the KwaZulu Government. The available information shows that relatively small numbers of highly trained KwaZulu citizens find employment outside the borders of KwaZulu or in the private sector inside KwaZulu. Exceptions do occur in the field of law and medicine, where the data indicate that a high percentage of the graduates must move into the private sector. At the moment the demands of the public sector give a very good indication of the total demand for the occupations discussed. The demand is of such a magnitude that Std 10 school leavers ought to be able to find suitable work in the public sector if they wished. The great demand in the public sector is the result of the low production of secondary school leavers during the early 1970's. However, the increase in enrolment is of such a magnitude that a situation may arise in the not too distant future that even Std 10's cannot secure suitable employment. As the level of education of school leavers rises, the entrance level for many jobs, especially for artisans, agricultural officers and clerical personnel could also be raised and the training adopted accordingly.

4.5.2 One of the main problems in training technical personnel is that these fields of study usually demand that mathematics and physical science should have been taken as subjects at school. As elsewhere, teachers in these subjects are extremely scarce in KwaZulu. This situation leads to an impasse and serious consideration should be given to the introduction of interactive-programmed training in these two subjects. The HSRC's Institute of Educational Research has already developed such a training system for Mathematics. B.Com graduates among the teachers are just as scarce.

4.5.3 Manpower planning as such can only be done at the organization level. Macro-studies are valuable in the sense that the individual organization gets a feel for the manpower situation in which it is operating. A manpower plan can never be regarded as an inflexible blueprint for action. Regular reviewing of the manpower situation both on a micro and macro-level is therefore necessary to take cognisance of the unforeseen changes that have occurred so that the "plan" may be adjusted to meet changing demands. The Government of KwaZulu may be regarded as an organization - all Departments as well as the KDC should submit annual returns on the number of posts by occupation, number of vacancies, loss rates during the year, and number of intakes, to a central collating point. A better understanding of the manpower picture can then be obtained and trends observed. This information will also be of value to the PCAC.

4.5.4 Changes are taking place in the labour scene of South Africa in the wake of the Wiehahn and Riekert Commissions reports. What effect these changes are going to have on the trained manpower situation in KwaZulu, will depend on the labour conditions and wage differentials inside and outside KwaZulu. The HSRC's Institute for Manpower Research has started with a manpower monitor system in key occupations such as those held by engineers, technicians and artisans.

The aim is to monitor structural changes in the labour force. From this system valuable information should come available in two to three years' time, which can give some indication of the changes that are taking place and from which some idea of the absorption rate may be obtained. When reports on the findings of the system are published, copies will be made available to the PCAC.

4.5.5 Unemployment is the other main problem of KwaZulu. The economic Development Programme of the RSA (1978-1987) shows that not enough job opportunities can be generated in the formal sector for the fast growing population. It is therefore possible that schemes aimed solely at supplying the absolute basic needs but at the same time developing the infrastructure, will have to be devised. Research should be undertaken into the possible scope and cost of such schemes. The willingness of the unemployed to take part in such schemes should be part of such research.

4.5.6 As already pointed out in paragraph 4.5.3, manpower planning should be an ongoing exercise. The HSRC would be willing to assist in the development of such a system, if requested.

APPENDIX 1  
QUESTIONNAIRE

Occupation	Present employment							Present qualification requirements	Black Personnel				Card No.
	Black		White		Other		Vacancies/ manpower needs		Minimum quali= fication re= quirements (desirable)				
	M	F	M	F	M	F	Present (1978/9)			1983/4			
1													
2													
3													
4													
5													
6													
7													
8													
9													
0													
1													
2													
3													
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9													
0													
Column No.	9-11	12-15	16-19	20-22	23-25	26-28	29-31	32-34	35-37	38-41	42-44		



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