AN ASSESSMENT OF EMPLOYMENT OPPORTUNITIES CREATED BY THE KEISKAMMA IRRIGATION SCHEME

Submitted as an integral part of the course for the M.A. Degree in the Department of Geography, Rhodes University

by

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ADDENDUM - FOR THESIS ON AN ASSESSMENT OF EMPLOYMENT OPPORTUNITIES CREATED BY THE KEISKAMMA IRRIGATION SCHEME

1. P.iii and iv - Incorrectly numbered. Corrected.

2. P.iii - data were - first line, second paragraph.

3. SPELLING CORRECTIONS:

Page 13 - Line 2 - needed.
Page 44 - Line 27 - criticism.
Page 52 - Second line from bottom of page - economic.
Page 86 - Line 12 - Keiskammahoek.
Page 91 - Line 2 - education.
Page 95 - Line 10 - household.
Page 98 - Line 14 - criterion.
Page 117 - Last line - the (duplicated)
Page 125 - Line 3 - respondents
Page 138 - Line 1 - Lausen.

4. WORDS OMITTED:

Page 6 - Line 3 - had passed Standard

Page 18 - Lines 10 and 11 - draw people off the land

5. Appendix B should be headed A Sample of the Computer Programme

PREFACE

"The need for development as observed today is a problem peculiar to the 20th century. The current situation is characterised by the fact that there are no more empty places on the earth, while our use of dwindling resources is curbed by environmental constraint." (Mouly and Costa, 1974, 155). The need for development is not equally felt by all nations as disparities in income and standards of living on a national basis have dissected the world into developed and underdeveloped countries. Disparities also exist within nations. These divisions are not simply determined nor are the terms related to development clearly defined - a matter that will be discussed in Chapter Two. Impetus to developing underdeveloped countries may be provided by various means, such as a general injection of capital or by more specific development projects. The purpose of these projects is to initiate changes that are intended to promote rapid development of an area. An interest has been shown by Geographers in the ability of these projects to stimulate economic growth in surrounding areas (Silberfein, 1976). The resulting success of development projects is closely related, if not determined, in large measure, by the aims. In view of the need for the aims of development projects to be successfully fulfilled, research into what constitute constructive developmental aims would be beneficial. Previous studies have revealed problems encountered with conflicting aims and objectives (Mountjoy, 1971); poorly defined aims (de Wilde, 1967); and inadequate groundwork prior to initiating the project (Berry, 1976). It is the intention of the study to examine the impact made by a development project in an underdeveloped area, and thereby assess the extent to which the development aims have been carried out.

In order to carry out an examination of a development project in an underdeveloped area, an area in need of development had to be selected; a project within the area chosen for study; and the particular aim of

the project examined. The Ciskei, a Homeland in South Africa, was chosen as a suitable area for study. A number of factors contribute towards it being an area in need of development, particularly as the Ciskei is a small country and dependent on South Africa, which is explained in the overview of the Ciskei in Chapter One. Three characteristics of underdevelopment noted by Seers (1972) are poverty, inequality and unemployment. Of these three factors it was decided to focus on unemployment as the indication of the extent to which development has taken place. The reduction of unemployment was one of the aims of the Keiskammahoek Irrigation Scheme, the project chosen for study. The overview concludes with a presentation of the Keiskamma Irrigation Scheme.

Chapter One explains the characteristics of the Ciskei, such as unemployment, typical of an undeveloped region, low level of education, and the high percentage of the population occupied in agriculture. Development models that attempt to explain underdeveloped regions such as Rostow's (1960) development stage model, and the core-periphery model (Friedmann, 1966) and their application to the Ciskei (Board Davies and Fair, 1970, Page, 1978) are examined. Finally, the Keiskamma study area is described outlining the physical and salient details of the Keiskammahoek village, adjacent peasant farming community and the Keiskamma Irrigation Scheme itself, which is the central focus of the study.

The Ciskei is set in a broader context of development and underdevelopment in Chapter Two. In view of the decision to review development in relation to employment opportunities, the review of literature will focus on employment, especially that promoted in the agricultural sector by projects such as irrigation schemes. Approaches to development and models derived in relation to underdevelopment are discussed. A concern with development strategies aimed at promoting economic growth is that they are not automatically accompanied by a marked reduction in unemployment (Galenson, 1971). A further problem discussed is that whatever the form of

deveopment, there will be competition for scarce resources, especially between the industrial and agricultural sectors. Development projects continue to be implemented in spite of the problems. The Keiskamma Irrigation Scheme being studied is similar to a resettlement scheme and therefore resettlement schemes are discussed. There are three possibilities for increasing employment by developing an irrigation project such as the one at Keiskammahoek. Firstly and secondly full-time farming and wage-employment opportunities are available on the Scheme itself. Thirdly, commerce could expand in the Keiskammahoek village as an indirect result of the Scheme, bringing a corresponding increase in employment opportunities. The hypothesis is based on these three areas of employment opportunities. The aim of the study is to assess whether the Keiskamma Irrigation Scheme has created employment for the local populace in the Keiskamma area. At the end of Chapter Two, the themes and general theories of undervelopment are drawn together to formulate the hypothesis to carry out the aim of the study.

The data needed to test the hypothesis was collected from the Keiskamma Irrigation Scheme and from one of the nearby villages. Chapter Three details the sampling of these groups and the information that was obtained from them through the use of Questionnaires. The problems encountered with the Questionnaire are also discussed. A particular problem area vital to the analysis of the results was that not all heads of households were available to answer the Questionnaire. It was decided that acting heads should complete the Questionnaire and be included with the heads of households group in the analysis of the results (Chapter Four). The alternative approach adopted did allow for an analysis of the local inhabitants remaining in the village. As the study aims to examine the employment opportunities created for the local populace, this alternative suited the intentions of the study. Further information required to fulfill the aim of the study was obtained through informal interviews with the Manager of the Scheme and the shopkeepers. The recording and processing of the data collected is also detailed in Chapter Three.

In Chapter Four the results of the study are analysed and the hypothesis tested. The Chapter is divided into four sections. The first section outlines the general profile of the Gxulu and settler sample groups. The following three sections correspond to the three areas of employment opportunites opened up by the Scheme, viz: full-time farming on the Scheme, wage employment on the Scheme and indirect employment opportunities arising in the village of Keiskammahoek. Difficulties were experienced in two areas. Firstly, an assessment of the employment opportunities created for the local populace by the Scheme was complicated by the fact that the Scheme had only been in operation for three years. The study examined a scheme in its early stages in response to the need for close examination of development projects in their initial stage (de Wilde, 1967). This short period may be inadequate to establish changes in employment patterns pointing to the need for further studies monitoring the development of the Scheme, particularly in relation to the employment opportunities it creates. Secondly, other developments such as a sawmill and a recent settlement of Blacks from Humansdorp at Boma Pass make it difficult to know the precise influence of the Irrigation Scheme itself in the creation of new employment opportunities.

The Fifth Chapter concludes the study. Directions for future research are emphasised as part of the intention of the study is to contribute to a body of knowledge concerned with development issues. Specifically attention is made to improving the aims of development strategies in order that constructive development might ensue. In many ways the results of one study can only make a small contribution, but should the avenues of research opened up be fruitfully explored, a meaningful corporate contribution can be made. The study examines a development strategy in its primary stages of inception and therefore there is also scope for a historical approach to be adopted in future research. The study therefore aims to evaluate the developmental impact made by the Keiskamma Irrigation Scheme on the Ciskei in terms of creating new employment opportunities.

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CHAPTER ONE

THE CISKEI : AN OVERVIEW

The Ciskei is a Homeland in the process of gaining independence from South Africa. The Homelands in South Africa are areas reserved exclusively for Black occupancy (Hattingh 1976). Of particular concern to the Ciskei Homeland government is that the Ciskei should become economically viable. The Ciskei displays characteristics of an underdeveloped country and as such experiences a low level of economic growth despite its spatial position as an integral part of a relatively economically advanced country, the Republic of South Africa (Charton, 1980). It is postulated by Board, Davies and Fair, (1970) that it is because of the Ciskei's peripheral and dependent relationship with South Africa that the Ciskei is underdeveloped. This view will be considered in relation to the development proposals put forward for the Ciskei. Development proposals and strategies are an important part of building the economy of the Ciskei. In this chapter an overview of the Ciskei is presented in terms of factors that underlie the Ciskei being a region of low prosperity. The need for development strategies is illustrated by the overview.

The chapter comprises three main sections. In the first instance, economic characteristics of the Ciskei are discussed. An understanding of these economic characteristics is important in understanding the underdevelopment of the Ciskei and the need for development strategies. Of interest is the degree to which development strategies help reduce unemployment. Particular attention is focussed on the

question of employment as this is central to the theme of the study. Secondly, development proposals for the Ciskei are discussed in relation to the theory underlying the formulation of the proposals. The underlying theory contributes to an understanding of the objectives of development strategies and towards an examination of development strategies. The study is especially concerned with examining rural resettlement schemes that aim to promote agricultural production. The particular aspect of the resettlement scheme studied is the role it plays in reducing unemployment. The problem of unemployment if not solved, could handicap development plans. A recent resettlement scheme, the Keiskamma Irrigation Scheme, has been established in the Keiskamma area (Fig.1) and the Scheme presents a suitable opportunity for examining the role played by a resettlement scheme in offering employment openings. The Keiskamma area, therefore, has been selected for more detailed study and is described in the third section.

I. CHARACTERISTICS OF THE CISKEI ECONOMY

In this section the characteristics that are indicative of the underdeveloped nature of the Ciskei economy are discussed. The small countries issue and the dependency of the Ciskei on South Africa are relevant in discussing underdevelopment. Migrant labour, unemployment, and low agricultural productivity are three aspects pertinent to the study. Migrant labour and unemployment represent two problems experienced in the Ciskei and development strategies aimed at increasing agricultural production provide employment for the unemployed and the migrant labourer.

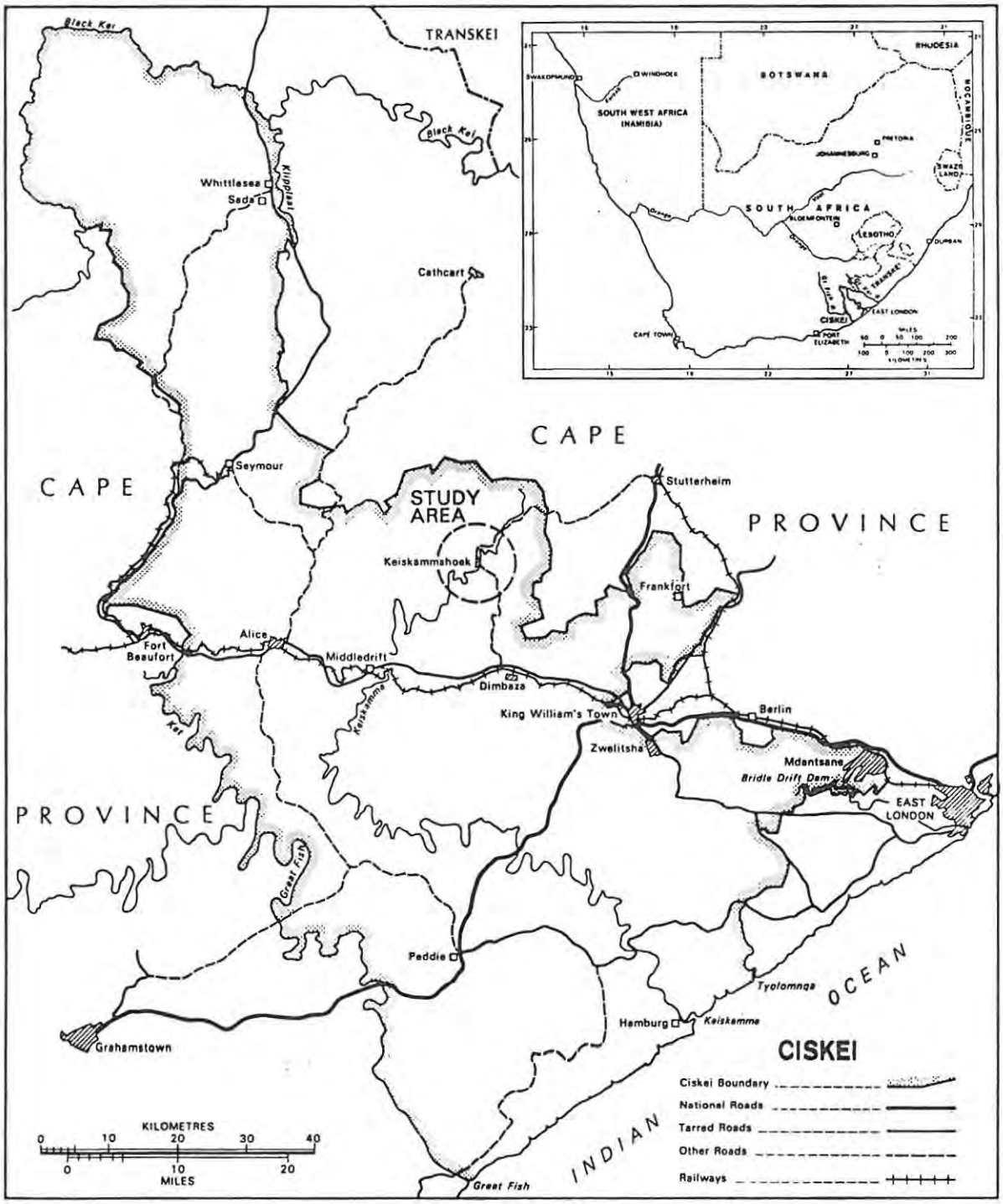


FIG.1 ; THE LOCATION OF THE STUDY AREA

A. THE SMALL COUNTRIES ISSUE

Maasdorp (1976) explains that 'small countries' are usually defined on the basis of their area, population and per capita income. He adds, that exact cut-off points are difficult to determine. In 1974 the Ciskei covered 754 000 ha (Table 1) less than 1% of South Africa which was 103,7 million ha in extent (South Africa, 1978). The de facto Black population in the Ciskei in 1970 was 526 040 (Table 1) and the gross national income (GNI) only R129 million, compared with the GNI of South Africa in 1970 of R11 839 million (Benbo, 1975; South Africa, 1978) The total income for de facto Black Ciskeians was R61,7 million and when divided by the de facto Black population, gave a per capita income of R117 (Table 1) However, this figure hides the wide disparities of income distribution within the Ciskei. According to the three criteria of area, population and income, the Ciskei can be classified as a small country.

Area	('000)
Hectares 1974	754
Population 1970	
De facto population of the Ciskei	529 635
De facto Black population	526 040
De facto Xhoxa population	511 680
De jure Ciskei population	934 580
Estimated income 1970	R
Income de facto Black inhabitants	61 700 000
Per capita income de facto black inhabitants	117
Income 1973	R Million
Commuter income	31,0
Migrant remittances	5,1
Absentees remittances	4,1
GNI	R Million 129,0

TABLE 1: THE CISKEI - AREA, POPULATION AND INCOME
(Also Benbo 1975 and Hattingh 1976)

	Urban	Rural	Total
None	37 600	194 140	231 740
Sub A	5 860	27 900	33 760
Sub B	4 600	19 660	24 260
Std 1	6 240	31 300	37 540
Std 2	7 060	29 480	36 540
Std 3	7 200	27 760	34 960
Std 4	7 360	24 920	32 280
Std 5	7 980	21 300	29 280
Std 6 & 7	12 680	25 380	38 060
Std 8 & 9	4 220	6 660	10 880
Std 10	1 100	1 160	2 260
Unspecified	—	120	120
TOTAL	101 900	409 780	511 680

TABLE 2: COMPOSITION OF THE DE FACTO XHOSA POPULATION OF THE CISKEI ACCORDING TO SCHOOL QUALIFICATION - 1970 (Benbo, 1975)

Small countries are usually dependent on other countries for their economic needs to be met. The Ciskei is dependent on South Africa for capital, skills and manufactured commodities. The low gross national income (Table 1) suggests that the Ciskei on its own would be unable to finance large development projects and initiate industrial developments. Furthermore, approximately 75% of Homeland budgetary revenue is voted by parliament in Cape Town (Maasdorp, 1976).

The need to import skills into the country can be related to the low level of education, a characteristic of

underdeveloped countries. Table 2 shows that 184 260 Ciskeians (36%) had Standard Two or above and 51 200 (10%) Standard Six or above. Only 2 260 (0,04%) pupils had passed 10 in 1970 (Table 2). An example of skill being imported into the Ciskei is the fact that Loxton, Hunting and Associates provide a management body for the Keiskamma Irrigation Scheme, and in steel workers being brought in from South Africa for the steel works in Dimbaza, established in 1977. A final example of the dependency of the Ciskei on South Africa is the large flow of migrant and commuter labour to the mines and industrial complexes where job opportunities are more abundant than in the Ciskei and wages are higher. The small countries issue and dependency of the Ciskei on South Africa conveys a general understanding of the nature of underdevelopment in the Ciskei. The characteristics of underdevelopment will now be examined in three areas relevant to the study, migrant labour, employment and agricultural production as the study is concerned with the way in which a development strategy promotes increased agricultural production and in so doing provides employment for the unemployed and the migrant labourer.

B. MIGRANT LABOUR

Page (1977) states that migrancy and contractual labour forms the main economic base of the Homelands as is evident from the remittances sent back to the Homelands from workers in South Africa. Table 1 indicates that the income from commuter and extra territorial contract labour together totalled R40,2 million which was a third of the gross national income in the Ciskei of R129 million. The effect of the large number of migrant labourers is seen in the sex structure of the Ciskei population (Fig.2) There is a marked absence of males in the economically active age group.

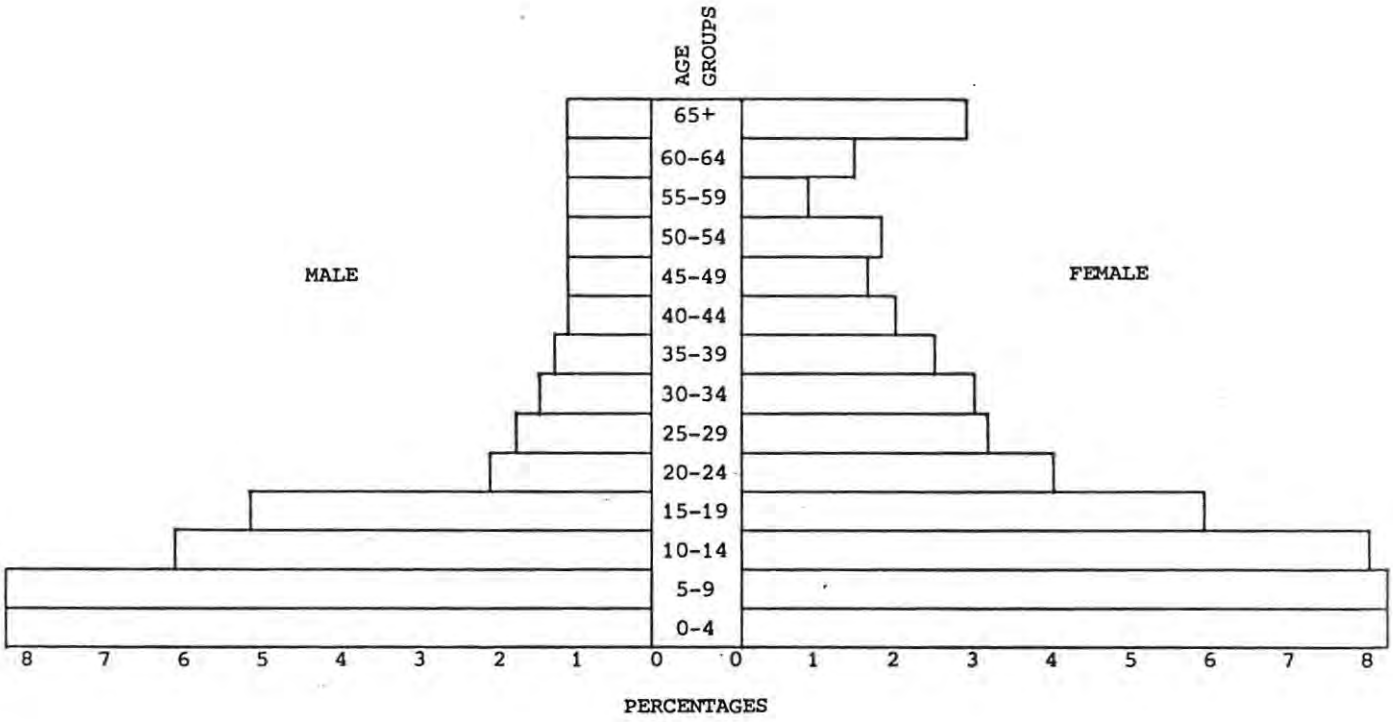


FIG.2: AGE AND SEX STRUCTURE OF THE CISKEI POPULATION (Benbo 1975)

Of the 133 200 de facto economically active male and female Xhosa Ciskeians in 1970, there are at least 39 187 temporarily absent males from the Ciskei (Benbo, 1975). In addition to migrant labourers who are absent for long periods of time, commuting labourers travel daily across the Ciskei border to work in industrial areas such as East London, King Williamstown and Queenstown. In 1970, 2 376 Ciskeians were employed in the manufacturing industry in King Williamstown and Queenstown. East London employs the bulk of commuters as it is a major industrial complex, well established on the border

of the Ciskei (Fig.1) The large percentage (29%) of the active male population working outside the Ciskei, places the Ciskei at an economic disadvantage (Udo, 1976) and has been referred to as economic leakage by Black (1980) There is a deficiency of labour to carry out the work needed to improve subsistence agriculture and a lack of skilled workers especially for industrial development. The low standard of education is a further deterrent to economic development. Of the rural de facto Xhosa population only 2% have passed Standard 8 (Table 2) the average education of White farmers (Marais, 1970). As regards the urban de facto Xhosa population 5% have passed Standard 8 and 1% have passed Standard 10 (Table 2). In addition there are social problems caused by members of the family, particularly the husbands being away (Wilson, 1972; Smith, 1977). One way to deal with this problem is for alternative employment opportunities to be offered in the Ciskei itself so as to reduce the flow of labourers, especially migrant labourers to areas in South Africa.

C. UNEMPLOYMENT

Maasdorp (1977) explains the difficulties involved in considering unemployment among Blacks in South Africa. The difficulties relate mainly to the credibility of census material. For example, the accuracy of the censuses varies because many urban dwellers in South Africa return to the rural areas in the Homelands where they may be enumerated. It is accepted that the data tabulated in the overview of the Ciskei may be inaccurate and therefore it must only serve to give a general indication of the Ciskei as an underdeveloped country. Table 3 indicates

that 14,7% of the economically active population in all the Homelands were unemployed in 1970. When this figure is broken down to urban and rural categories the highest rate of unemployment is evident in the Homeland urban areas (24,4%). The lowest is in white rural areas (Table3). Maasdorp (1977) suggests that the high rates for Homeland urban areas are consistent with the unemployment position in most underdeveloped countries. A characteristic indicative of some underdeveloped countries is the large rural population and Table 3 indicates the difficulty of finding employment for the population as 13,2% of the Homeland rural population are unemployed. In 1970 there were 17 580 unemployed Xhosa in the Ciskei (Table 4) Such figures demonstrate the need for development strategies aimed at reducing unemployment.

Area	Males		Females		Total	
	No.	Rate (%) (a)	No.	Rate (%) (a)	No.	Rate (%) (a)
South Africa	243 860	6,6	380 520	20,1	624 380	11,1
White areas	153 260	5,7	216 880	18,3	370 140	9,5
Homelands	90 600	9,0	163 640	23,2	254 240	14,7
White areas- urban	122 720	7,2	157 260	22,8	279 980	11,8
rural	30 540	3,1	59 620	12,0	90 160	6,0
Homelands- urban	26 280	16,6	32 540	39,5	58 820	24,4
rural	64 320	7,5	131 100	21,1	195 420	13,2

Note: (a) Defined as a percentage of the economically active population.

TABLE 3: BLACKS UNEMPLOYED AND UNSPECIFIED:1970
(Population census 1970)

Industry	Xhosa	Ciskei %
Agriculture	57 240	42,97
Mining	1 160	0,87
Manufacturing	11 800	8,86
Electricity	380	0,29
Construction	7 080	5,32
Commerce	5,160	3,87
Transportation	2 960	2,22
Finance	360	0,27
Services	16 360	12,28
Unspecified	13 120	9,85
Unemployed	17 580	13,20
Total Economically Active	133 200	26,0
Total Economically Unproductive	378 400	
TOTAL	511 680	

TABLE 4: TOTAL DE FACTO XHOSA POPULATION EMPLOYED BY INDUSTRY (Page 1976)

D. AGRICULTURE

Table 5 shows that in 1971/1972 agriculture contributed R4,301 million (13%) to the total GDP of the Ciskei (R 33,518 million) The low contribution made by manufacturing is typical of underdeveloped countries. The largest contribution to the total GDP (37%) was made by community social and personal services. The number of de facto Xhosa employed in agriculture in 1970 both as wage employment and as farmers was 57 240, 43% of the population (Table 4). The high percentage involved in

agriculture is typical of underdeveloped countries and contrasts greatly with the 4% engaged in agriculture in the United Kingdom. The fact that agriculture only contributes 13% (Table 5), despite the large percentage of people engaged in the sector, to GDP is indicative of the low level of production in this sector in the Ciskei. At the same time agriculture is the third highest contributor to GDP (Table 5) which indicates the reliance on agriculture within the Ciskei economy. The mode of production is largely subsistence, although marked efforts are being made to improve production and introduce commercial crop production (Page 1976).

	R'000		
ECONOMIC ACTIVITY	1970/71	1971/72	%
Agriculture	R 2 997	R 4 301	13
Manufacturing	601	625	2
Wholesale and retail trade	944	1 004	3
Transport	2 046	2 293	7
Finance	680	719	2
Community	9 865	12 288	37
Public administration	3 352	4 310	13
Education services	3 039	4 168	12
Health services	1 000	1 240	4
Other marketable services	64	87	-
Subsistence services	2 410	2 483	7
TOTAL	26 998	33 518	100

TABLE 5: GDP OF THE CISKEI ACCORDING TO TYPE OF ECONOMIC ACTIVITY, 1960/61 and 1965/66 - 71/72
(Benbo, 1975)

Development projects employed as a means of improving crop production include extension services whereby farmers have access to advice on conservation, co-operatives where the resposibility for marketing goods is removed from the farmer; and the application of modern techniques to improve crop yields such as irrigation, fertilization and herbicide spraying (Islam, 1974). The aids to agricultural development can be applied from within the existing structure by instructing individual farmers and encouraging the adoption of innovations. Progress is seen to be slow but assured. Alternatively a new structure can be imposed such as an irrigation scheme which involves the resettlement of people into a new and often highly structured economically orientated environment. The Keiskamma Irrigation Scheme is an example of change brought about by introducing a new economic structure. A certain level of education is necessary in a system geared towards increased economic production as handling sophisticated machinery, coping with accounts and similar demands are made on the individual.

The section has outlined the principal characteristics of underdevelopment in the Ciskei. The dependency of the Ciskei on South Africa raised in the 'small countries' issue demonstrates particular aspects of underdevelopment; namely, the lack of capital necessary for economic growth, the lack of skills necessary for undertaking development strategies, the low level of education retarding progress in developing the Ciskei and the lack of employment opportunities available to keep the economically active population within the country. The lack of employment opportunities in the Ciskei has resulted in the dual problem of migrant labour and unemployment. Unemployment is prominent in the rural areas because almost 243 800 (71%) of the total population are concentrated in the rural areas (Page, 1976). The problem

takes on added importance in the light of the large areas of land neede for agricultural development necessitating the removal of people to other locations. In Europe during the industrial revolution industries absorbed landless labourers. In Africa and the Ciskei in particular there are insufficient employment opportunities in the urban areas to cater for the movement of people off the land as the urban unemployment rate is higher than the rate of unemployment in the rural areas (Table 3). In the light of the large number of Ciskeians migrating in search of work and the high rural and urban unemployment rates the reduction of unemployment should be considered within development proposals. Development strategies also acquire importance as a means of promoting economic growth within the Ciskei itself and reducing its economic dependence on South Africa. The following section briefly outlines the framework underlying the development proposals put forward for the Ciskei.

II. DEVELOPMENT FRAMEWORK

The economic dependence of the Ciskei on South Africa, the problem of migrant labour and unemployment, together with the low level of agricultural production and literacy, contribute towards the low level of prosperity in the Ciskei. Development proposals have been put forward to help the Ciskei overcome these drawbacks. A major section of research into formulating a national plan of development for the Ciskei has been done by the Institute for Planning Research, Department of Town and Regional Planning, University of Stellenbosch, under the leadership of Page. Page (1976) bases the proposals on the core-periphery model, as well as drawing from Rostow's (1960)

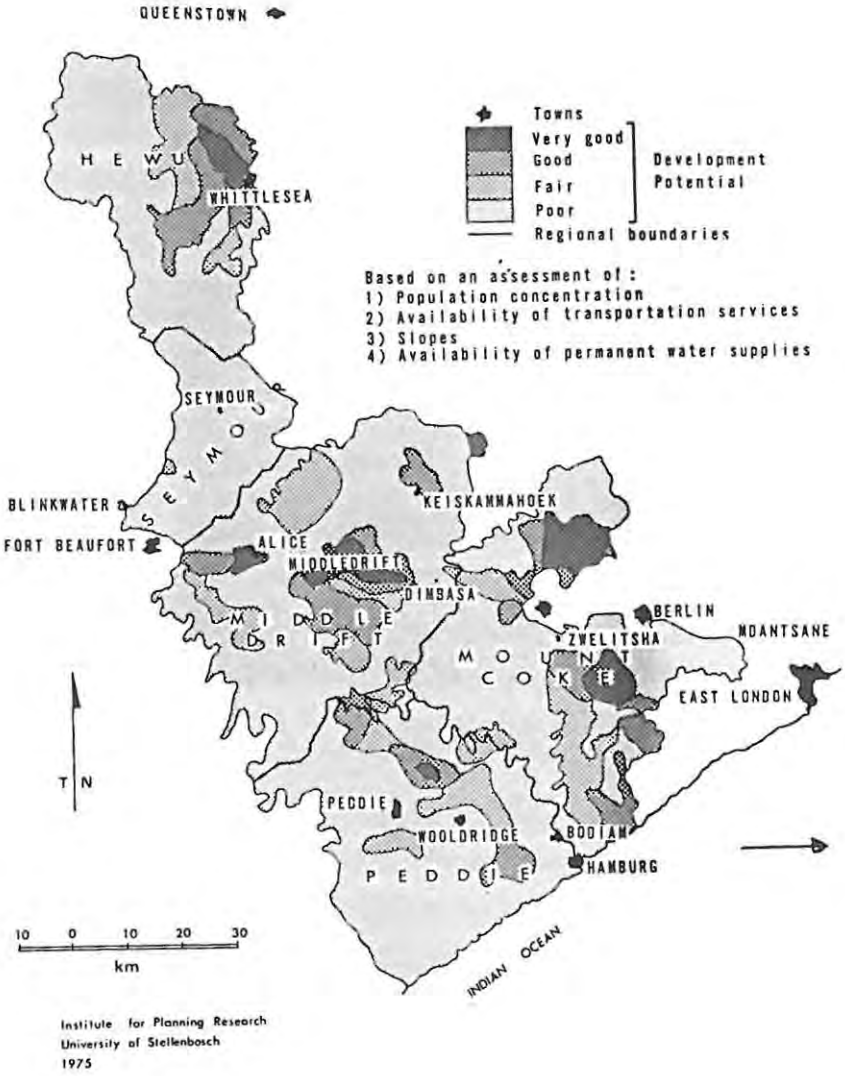


FIG.3 : DEVELOPMENT PLAN FOR THE CISKEI: CUMULATIVE ADVANTAGES FOR GROWTH POINT SELECTION(Page 1978)

stages of growth theory. These two models are related briefly to the Ciskei and will be explained in detail within the overall context of underdevelopment in the following chapter.

Rostow (1960) proposes a series of five stages through which a country passes as it develops. The first stage, the 'traditional society', is one where production is limited and the stage is characterised by subsistence production. Overcoming the obstacles to economic growth is the concern of the second stage, 'establishing the preconditions for take-off'. Once the changes needed have been accomplished the third stage is reached where the economy experiences 'take-off', and economic growth becomes self-sustained. The final stage, 'drive to maturity' is a long period of sustained progress where the beneficial effects of modern technology reach into all parts of the economy. Page (1978) identifies the Ciskei as falling into two phases, relating on the one hand to its internal development and on the other to the role played by its labour force outside the Ciskei. The internal economic structure of the Ciskei is based largely on a subsistence economy and therefore falls into the first phase. Page's (1978) reason for placing the extra territorial labour force in the third stage is that the training they receive places them within the industrial phase of development equal to the rest of South African urban economy. In outlining development proposals Page (1978) does not stay within a Rostonian framework. This would be difficult considering his view of the Ciskei as being in two stages that are not consecutive. However, the two factors emphasised in Page's attempt to place the Ciskei in the context of the development stage model are relevant, namely, the Ciskeian economy has a marked

subsistence base, and those employed outside the Ciskei are receiving a training that is both impossible for the Ciskei to give within the present economic structure and unusual in an underdeveloped country.

A more suited framework for understanding the underdevelopment of the Ciskei and a basis for proposing plans to develop the Ciskei is the core-periphery model. Page (1978) turns to this model when he begins to consider the Ciskei in relation to South Africa. Board et al (1970, 368), in examining the South African space economy, observe that: "Spatially, the growth of the economy and changes in population distribution have proceeded at different rates in different areas - most rapidly in the expanding cities and new mining centres and least ... in the partly subsistent African reserves." Various economists, Myrdal, 1957; Hirschman, 1958; Pred, 1965; Friedmann, 1966) have developed models in an effort to explain the dichotomies arising in a developing economy. These models fall under the general heading of core-periphery models as the more advanced areas are referred to as 'core' areas and the less advanced as 'periphery' areas. The model can be applied at both the national and regional levels. The Ciskei is situated adjacent to the East London industrial complex. On the basis of Board, Davies and Fair's (1970) application of the core-periphery model to South Africa the Ciskei can be seen as the periphery of the East London core on the regional level while East London is peripheral to core areas such as the Witwatersrand on a national scale. On a local level the Keiskamma Irrigation Scheme would constitute a core with ideas diffusing out into the peripheral subsistence farming area. The application of the core-periphery model is dealt with in

more detail in Chapter Two. Fig. 9 in Chapter Two can be referred to as a diagramatic representation of the core-periphery concept applied to the Ciskei. At the regional level, then, the core area of East London containing industries that attract labour from the Ciskei aids the process of economic leakage from the Ciskei periphery (Black, 1980). The labour attracted to the industrial areas will spend a large portion of wages there if living in the town semi-permanently, and a smaller portion if commuting. The services and supply of goods provided in the major industrial towns tend to satisfy the demand, denying the Ciskei the economic advantages of expansion in the business sector and increased circulation of money. This situation of labour migrating out of the Ciskei for work is an illustration of the effects of the core-periphery model. The build-up of economic advantages in one area can have a corresponding disadvantageous action in another.

The solution proposed, having accepted the validity of the core-periphery model of development, is to establish development centres in peripheral areas. These centres are placed in areas with development potential assessed on the basis of population concentration, availability of transportation services and availability of permanent water supply (Fig. 3) The growth centre concept envisages the initiation of industrial growth which will continue under its own momentum at a later stage. The employment opportunities generated by the industries will attract labourers from the rural hinterland leaving it clear to develop efficient agricultural practices that are impaired at present by the high density of population in the rural areas. Keiskamma has been proposed as a regional growth point (Fig. 3) and the establishment of an irrigation

scheme in the Keiskamma area is a move towards activating the perceived development potential of Keiskammahoek. The Keiskamma Irrigation Scheme is described in more detail below as it has been selected for study. The Scheme can be classified as a resettlement scheme and is discussed as such in the theoretical chapter following. The particular aspect of the Scheme examined is the role it plays in generating employment opportunities. The large rural population together with the growth point concept envisaging the provision of employment to draw people off the are factors underlying the need for rural development strategies to be examined particularly in relation to the employment opportunities provided.

The reference to Rostow's (1960) stage model of development and the core-periphery model serve to indicate the basic approach to development in the Ciskei as being a Western approach. The Western approach essentially views underdevelopment as a process generated within a country which is characterised by features that are generally regarded as obstacles to development such as a low per capita income. Rostow's model envisages the overcoming of these obstacles as taking place in stages while the core-periphery model is an attempt to explain underdevelopment according to the relationships that exist between areas of unequal development within a country. The chapter following expands on the models of underdevelopment and the Western view of development placing the Ciskei in the overall context of underdevelopment. The overview of the Ciskei pointing especially to characteristics of underdevelopment and strategies employed as a means of initiating development, provides a background to the description of the study area itself.

The following section describes the Keiskamma Irrigation Scheme and the area of Keiskammahoek as this forms the study area.

III. THE STUDY AREA

The study area's position within the Ciskei and the Ciskei in relation to South Africa is illustrated in Fig.1. The study focuses on the recently established Keiskamma Irrigation Scheme as tha aim is to examine the role played by the Scheme in generating employment opportunities particularly for the peasant farming population occupying villages in the vicinity of the Scheme. General information is given about the physical characteristics of the area and the village of Keiskammahoek itself leading to a description of the farming community and the Keiskamma Irrigation Scheme.

A. PHYSICAL SETTING OF THE STUDY AREA

The study area is physically one of the more favourable areas of the Ciskei. It has the highest rainfall (mean annual rainfall is 630mm) and highest agricultural potential of all the regions (Hill, Kaplan, Scott et al, 1977). The Keiskammahoek Magisterial District forms a natural basin carved out by the headwaters of the Keiskamma River and is set against the Eastern edge of the Winterberg Escarpment, known locally as the Amatole Range. This range lies to the north of the basin. There is a high degree of dissection in the upper river valley. The main river is the Keiskamma River which has its source in the Amatole range. Floodplain conditions exist around the village of Keiskammahoek as the river flows through an area of gently undulating relief. The river is large enough to provide water for irrigation, the mean annual

run-off measured at Middledrift (Fig. 1) being 32 608 cumecs (Page, 1976).

B. THE VILLAGE OF KEISKAMMAHOEK

The population in the village of Keiskammahoek in 1970 was 2 060 Blacks, 187 Whites and 611 Coloureds totalling 2 858 in all. The village acts as a service centre for the outlying farming district. Keiskammahoek offers the following services: magistrates court, post office, police station, library, primary school, church, hotel, service station and three financial institutions. In addition there are eight general dealers and one butchery.

The industries are a sawmill (started in 1974) and two furniture factories located on the outskirts of the town. There is no rail head at Keiskammahoek, the nearest one being at Debe Neck, 20 km away. However, there is a regular bus service, buses running every day from Keiskammahoek to King Williamstown, Alice and Stutterheim. Keiskammahoek is linked by gravel and tar road to King Williamstown, Alice and Stutterheim (Fig.1) There is also an airstrip for light aircraft.

In view of the large population and minimal number of industries in Keiskammahoek there is a need for further development, so that more employment opportunities might be generated. However, the lack of rail communication places the village of Keiskammahoek at a disadvantage in terms of large scale industrial development. Development would necessarily have to be induced through such measures as tax reductions for industries locating at Keiskammahoek,

so as to overcome economic disadvantages such as lack of natural resources and poor communications. Agricultural development in the hinterland is important in addition to development of industries in the village of Keiskammahoek.

C. THE PEASANT FARMING COMMUNITY

There are 16 locations in the vicinity of the Irrigation Scheme each containing a number of villages. The total rural population of the district of Keiskammahoek was 23 942 in 1970 (Page 1977). The locations are divided into residential areas, arable areas, grazing areas and woodlots. In terms of the location plan set out by the Tomlinson Report (1955) the arable areas are divided into arable units each of which is regarded as an economic unit. Livestock graze on communal land, access to which is given by a grazing right. In the sixties the target income for a unit was R120 p.a. However, to satisfy the demand for arable land by all who had a traditional right to land, much of the land was issued as units of 1 ha or less. The mean size became 2,3 ha when it should have been about 7 ha. Some of the units were only 0,86ha in extent (Hill Kaplan Scott et al, 1977) Environmental factors such as poor soils and non-intensive production methods contribute to the fact that the smaller units particularly those under 3 ha are not economic. The Keiskamma River Basin Study (Hill Kaplan Scott et al 1977) revealed that 70% of the locations do not have potential for market orientated crop production which suggests that subsistence production must continue unless alternatives can be found.

In addition to the 16 locations a recent settlement of Blacks from Humansdorp at Boma Pass has been created (1977 -78). The Blacks are settled on Bantu Trust Land and each household has temporarily been given plots of land

measuring 40m x 40m, too small for economic production. It is proposed that if a family does not find employment on the Scheme either as settler farmers or labourers, they will be given four ha of dryland area to farm. Due to the difficulty of earning a living from the small plots and the paucity of employment opportunities in Keiskammahoek the majority of workers have retained their jobs in Humansdorp. However, a large number are unemployed and as the holdings are not able to support the households, the Boma Pass population is an added burden to the unemployment problem in the Keiskammahoek region. In addition the conditions of poverty and unemployment at Boma Pass result in crops, especially maize, being stolen from the Keiskamma Irrigation Scheme. As a result of the stealing the Scheme has had to grow maize as a fodder crop rather than a market crop.

D. KEISKAMMA IRRIGATION SCHEME

The Keiskamma Irrigation Scheme was started in 1976. The Scheme is being developed on a number of farms bought from White farmers in the late sixties for the Ciskei government for Homeland consolidation purposes. The present irrigation plan is confined to 900 ha but a total of 2 000 ha of good quality soil in the vicinity of Keiskammahoek is available for future expansion (Hill, Kaplan, Scott, et al, 1977) The planners chose to base the Scheme on milk production because the fairly steep slopes of the irrigable land was better suited to pastures than annual rowcrops. In addition there is a demand for milk in the Ciskei.

The planners have based the Scheme on the Moshav system in Israel. On a moshaveni each family works their own 'Dulan' (3—4 ha) and the marketing is taken care of by a central body (Frank, 1968). The Keiskamma Irrigation Scheme has been divided into 10 productive units, one of which is the Central Unit on which the headquarters of the Scheme has been developed (Fig.4.). The central unit provides a comprehensive range of services to the other nine units, such as machinery, marketing facilities, fertilizers and seeds. The other nine units were divided into four ha settler's plots. A house is provided on each plot. Each unit has a milking parlour to which the farmers take their cows for milking. The milking is done by machine and under supervision to maintain a high standard of hygiene.

The Scheme is planned to take 175 Ciskeian settlers when completed. Part of the purpose of the Scheme is to encourage Ciskeians to come back into the Ciskei from South Africa and a reasonable living from intensive irrigation farming is offered as an incentive. The settlers are involved in decision-making although the major responsibility of running the Scheme is taken by the management team operating from the headquarters at the Central Unit. Prospective settlers are selected by a Board appointed by the Minister of Agriculture and Standard Four is a minimum education required because the farmers have to cope with a complex system of accounts. (Hill, Kaplan, Scott et al 1977). The settlers lease their land and house and pay for all goods provided by the Central Unit, such as in-milk cows and irrigation water from the sale of milk, crops, spare grazing and calves. The settlers lease the land they farm and therefore cannot pass it on to their sons. However, sons of settler farmers would have the advantage of being familiar with the workings of the Scheme should they want to apply as settler farmers.

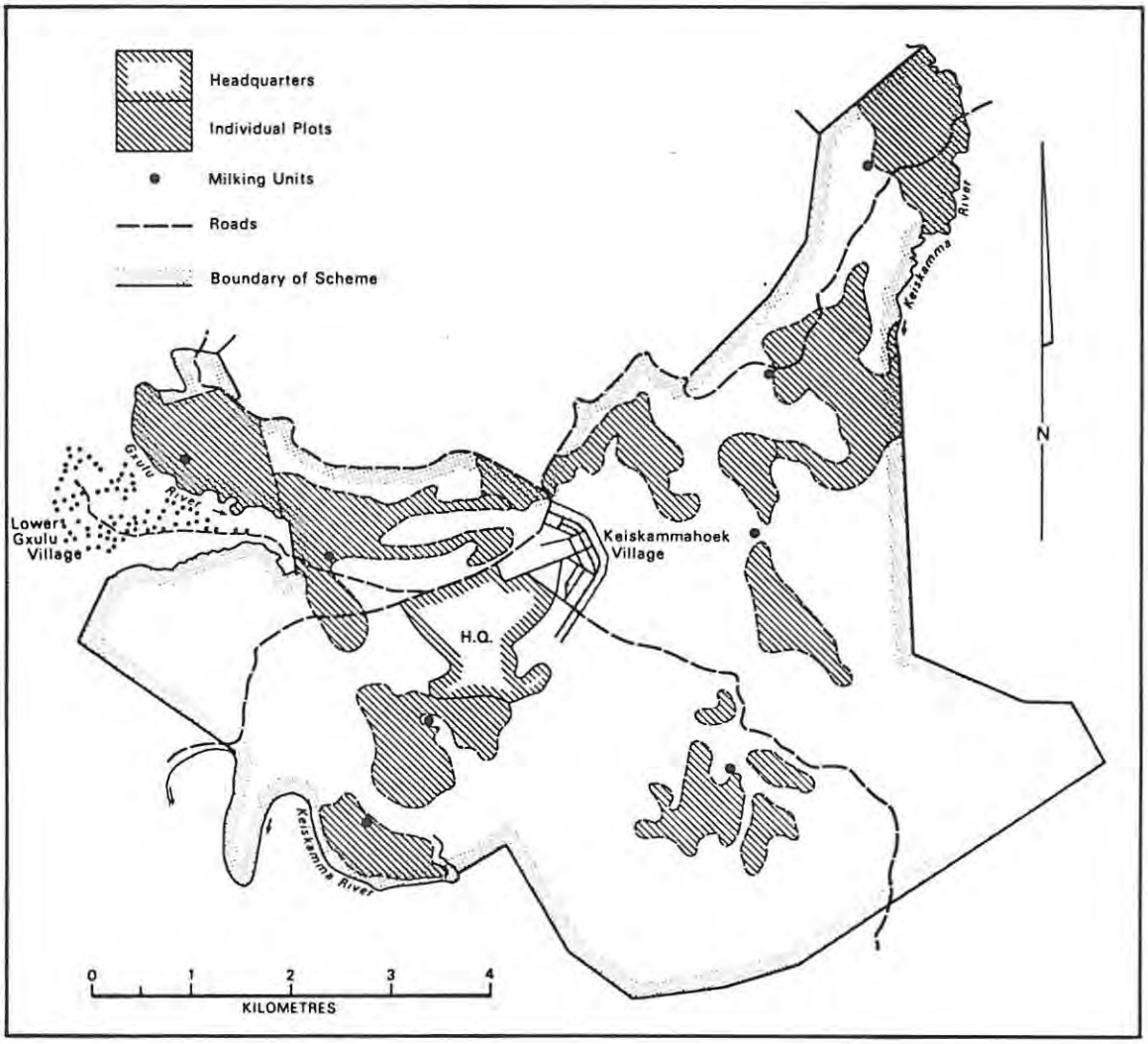


FIG. 4: THE STUDY AREA: LOWER GXULU VILLAGE, THE KEISKAMMA IRRIGATION SCHEME AND THE VILLAGE OF KEISKAMMAHOEK

The Keiskamma Irrigation Scheme hopes to bring certain benefits to the Ciskei apart from providing 175 families with a reasonable living and creating job opportunities. There were 52 settler farmers at the time of the survey and 413 wage employment opportunities apart from the settler farmers such as labourers, tractor drivers and section managers. The management team indicate that an additional benefit accruing from the Scheme will be the development of a growth point with beneficial multiplier effects. Although they do not elaborate on the form such development is likely to take a possibility is the expansion of commerce in the village of Keiskammahoek. The study aims to investigate whether commerce has expanded and whether increased employment opportunities have been generated as a result of the Scheme.

The Keiskamma Irrigation Scheme is part of a general concern to aid the Ciskei in its socio-economic development. The general condition in the Ciskei is one of low prosperity as has been illustrated in the overview and such development strategies as the Keiskamma Irrigation Scheme are implemented in an attempt to overcome the obstacles to development such as low agricultural production. The following chapter places the Ciskei in broader context of underdevelopment and provides a theoretical framework for examining the role the Keiskamma Irrigation Scheme plays in generating employment opportunities in an area that suffers from high unemployment.

CHAPTER TWO

EMPLOYMENT WITHIN THE AGRICULTURAL SECTOR OF UNDERDEVELOPED COUNTRIES : A REVIEW

INTRODUCTION

The preceeding overview highlights a salient feature of the Ciskei, namely that it is a 'poor' country. High levels of unemployment, along with low levels of literacy and agricultural production are key indications of conditions in the region. The socio-economic conditions prevalent in the Ciskei can be seen in other underdeveloped countries as well. The concern of this chapter is to place the Ciskei in context by looking at particular development issues common to underdeveloped countries, and the way in which these issues are reflected in the Ciskei. To accomplish this task a review of relevant development literature is undertaken. The issues that need to be expounded are those related to employment and the development of the agricultural sector. The review provides a theoretical framework for the study of the Keiskamma Irrigation Scheme and the extent to which it has created employment opportunities.

Resettlement schemes are a development strategy instituted as a means of increasing the level of prosperity in underdeveloped areas (Silberfein, 1976). To understand the situation giving rise to resettlement schemes it is necessary to clarify what is meant by underdevelopment. A review of the models utilized in formulating development strategies and the approaches upon which the models are based contributes towards an understanding of the way in which underdevelopment is perceived. Such perception affects the form a development strategy takes. The development issues relating essentially to improving agricultural production and reducing unemployment need to be outlined in the context of developing underdeveloped countries.

The second chapter comprises four sections. In the first section the literature on underdevelopment is reviewed. A theoretical framework is established whereby underdevelopment is defined and models and approaches relevant to developing underdeveloped areas are discussed. It is not within the scope of the study to carry out a comprehensive examination of all the various models - only criticisms and limitations are noted. Emphasis is placed on the models pertinent to the study, notably the core-periphery model as it is utilized in formulating development strategies for the Ciskei.

The previous chapter illustrated the need for employment in the Ciskei for the large numbers unemployed and for those who migrate away from home seeking work. The second section, then, analyses the role of economic growth in reducing unemployment especially in the agricultural sector. The third section discusses the development of the agricultural sector. It is in the agricultural sector that unemployment is a major problem due to the large percentage of population found in the rural areas and the lack of employment opportunities available. There are two issues in particular that receive attention. Firstly, the industrial sector competing with the agricultural sector for development aid, and the implementation of development strategies. Secondly, the agriculture development strategies themselves are examined, particularly resettlement schemes as the Keiskamma Irrigation Scheme studied is a resettlement scheme. In the fourth and final section the hypothesis, arising from the review of literature, is formulated.

I. A REVIEW OF DEVELOPMENT LITERATURE

The problems of defining and measuring underdevelopment are discussed. Models proposed as an explanation of underdevelopment can then be reviewed. Many models could be used, e.g. the export base model, diffusion of modernization and the transport network models.

Consideration is given to three models in particular, the development stage model, the dual-sector model and the core-periphery model. The development stage model representing pioneer work in the field of development has given rise to certain ideas and terms that have acquired common usage such as Rostow's (1960) idea of the take-off stage of development prior to a stage of 'self-sustained growth.' The dual sector model identifies two sectors 'traditional' and 'modern' within a country or region and as such is a forerunner of the core-periphery model (Lewis, 1954; Myint, 1971). The core-periphery model (Myrdal, 1957; Hirschman, 1958) also identifies two sectors, a 'core' and a 'periphery' and takes into account the relationships between the two sectors, a factor not given much weight in the dual sector and even less in the development stage model. The growth centre concept is proposed within the core-periphery model as a means of bringing development to the peripheral areas (Friedmann, 1966). The core-periphery model incorporating the growth centre concept is important in formulating development policy for the Ciskei and as such requires particular attention. The Keiskamma Irrigation Scheme, the strategy being examined in the study, has been established as a result of Ciskeian development policy. The Western approach to development, at the base of most of the models is then evaluated noting its contributions and limitations. In addition, alternative approaches that have been put forward are mentioned as they throw light on the limitations of the Western approach. An overall understanding is provided by the review of development literature of the basis behind the implementation of development strategies such as resettlement schemes. Such an understanding has a utilitarian function in providing a theoretical framework in which to carry out the aim of the study, which is to examine the development potential of the resettlement scheme.

A. DEFINING AND MEASURING UNDERDEVELOPMENT

There is little agreement as to what constitutes underdevelopment and what is meant by development.

This study will propose a working definition of both these terms as the provision of a full definition of development requires a separate study. The problem in defining development partly arises out of the need for some means of measuring development to facilitate research and policy decisions. Frequently development is defined in terms such as ".... a co-ordinated series of changes.... from a phase of life perceived by a population and all of its components as being less human, to a phase .... perceived as more human" (Lebret in Goulet 1967, 309) or "Development means creating the conditions for human personality" (Seers, 1972, 21). It is important to note the emphasis on development being for people in these definitions as the refinement of the definition of development to a stage where it can be measured appears to obscure this factor. Seers (1972) goes on to say that development must be evaluated according to whether there has been a reduction in poverty, unemployment and inequality. By inequality Seers is referring to the need for equal access to societal benefits such as education and political participation and equal sharing of costs such as pollution. The stricter definitions of development are generally couched in economic terms whereby development is seen as 'self-sustained growth,' an increase in production, a rise in gross national income or per capita income and similar measures of economic growth (Berry, 1960 ; Hartshorne, 1960; Mabogunje, 1973). The difficulty in defining both development and underdevelopment is further complicated by the differing views on the cause of underdevelopment. On the one hand the cause is seen as factors within the country such as a low level of economic activity, hindering development (Friedmann, 1966; de Blij, 1976). On the other hand the cause is attributed to the interdependent relationship between underdeveloped and more advanced countries whereby the development of the more advanced country causes the underdevelopment of other countries (Frank, 1967; Stavenhagen, 1969; Buchanan, 1971). As the former view underlies the development policy examined in the study the working definition given of the terms development and underdevelopment reflect this view.

For the purpose of the study development is defined as the process whereby progress is made from an underdeveloped to a more advanced state (Smith, 1979). Underdevelopment in the context of the study, refers to low levels of prosperity, characterised by such features as a low per capita output and low literacy levels coupled with high infant mortality and unemployment (Hodder, 1968).

The term underdeveloped is applied to countries experiencing low prosperity. Low prosperity is generally measured in economic terms such as Gross National Production (GNP), per capita income and the primary export range. The size of the country and population pressure are also considered. Auty (1979) demonstrates the possible danger in combining a set of countries together under umbrella terms such as 'underdeveloped', 'third world' or 'less-developed,' by illustrating the varying characteristics of underdevelopment within these countries. For example most Tropical African countries are small and underpopulated with a diverse primary export range while South Asian countries are large and overpopulated with a diverse primary export range. However, attempts have been made to measure differing degrees of economic development in underdeveloped countries (Berry, 1960).

Gross National Product (GNP) is a common index used to differentiate the degree of economic development. GNP can be defined as the total value of all goods and services, produced by the economy over a period of time,usually a year. Countries can then be ranked on a scale of development by dividing the GNP by the population to obtain an index that is a comparable measure of development (Goodenough, 1977). There are a number of problems associated with using the GNP index. The per capita statistics are often difficult to compute and hide wide disparities of wealth within the country itself.

The restriction of measuring development solely in economic terms ignores social and environmental contexts, such as the number of people benefitting from economic growth (Baker, 1973). Furthermore the people not in the cash sector are not catered for by the index. The example of the use of GNP as an index of development serves to illustrate the problems inherent in analysing development according to single indices of development. Berry (1960) attempts to overcome problems of using a single index of development by applying principle components analysis to a set of 43 variables in order to identify and differentiate the under-developed nations. However Berry's framework of analysis remains within the Western view of the countries of the world being set on a continuum of development (Fig. 5). The conception of a continuum of development does not readily encompass the idea of the countries being interrelated and interdependent, a criticism which is being considered in the evaluation of the Western approach.

The difficulties encountered with measuring and defining development and underdevelopment have not discouraged the search for models explaining underdevelopment and solutions offered for developing underdeveloped regions. The following section describes some of the more relevant models followed by an evaluation of the Western approach, the basis for most of the models on development.

B. MODELS OF UNDERDEVELOPMENT

The models explaining underdevelopment are reviewed to present a theoretical framework for examining the development of under-developed countries or regions. Models less relevant to the study, the development stage model, dual sector model and others are only briefly dealt with drawing out the features pertinent to the study. Particular attention is given to the more relevant core-periphery model and the growth centre concept contained within the model.

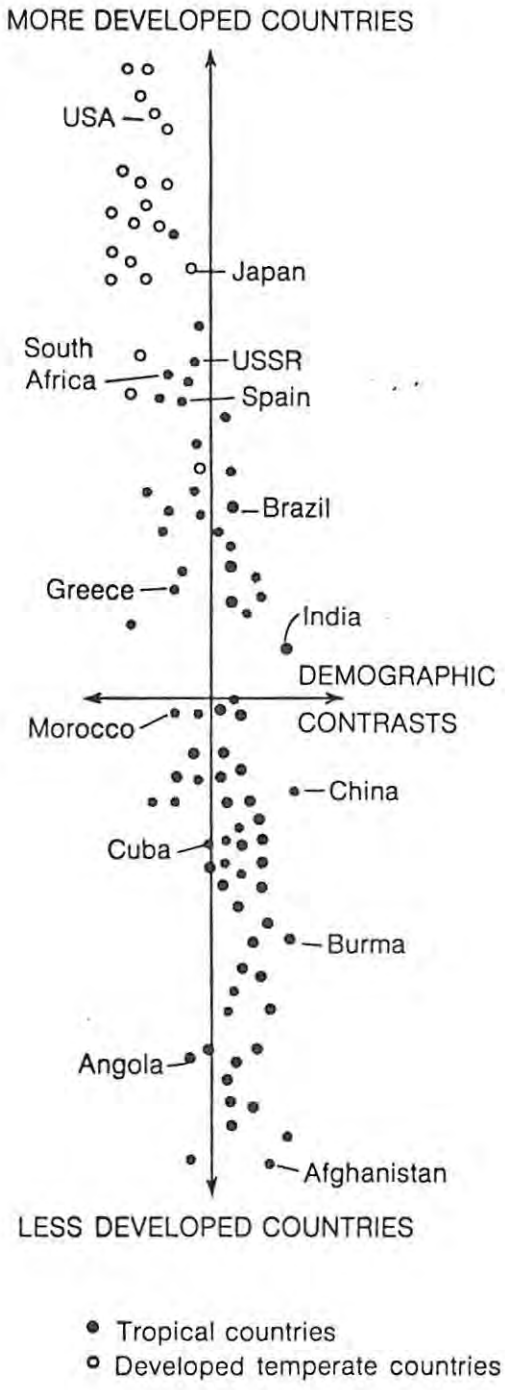


FIG. 5: COUNTRIES ON AN ECONOMIC DEMOGRAPHIC SCALE (Berry, 1960)

The relevancy of the core-periphery model to the Ciskeian development policy is illustrated and the aspects that contribute towards the examination of the resettlement scheme are emphasised.

1. DEVELOPMENT-STAGE MODEL: DUAL SECTOR MODEL AND OTHERS

Bradford and Kent (1977, 158) define the development-stage model as one which establishes a 'normal' sequence of stages, through which areas experience economic growth." Hoover (1948) and Rostow (1960) have contributed to the theory of development stages. Rostow's model is explained in a little detail as terms used in his model have acquired common usage. From an examination of data for fifteen countries, Rostow postulated that all nations could be placed along a continuum of development which is marked by five stages: the traditional society, the preconditions for take-off, the take-off to self-sustained growth, the drive to maturity, and the age of high mass consumption. The part of the model that is most relevant for underdeveloped countries or peripheral regions is the take-off stage, a short period during which growth within a country becomes more or less automatic. The concern of policies based on development stage models is to stimulate growth during the take-off stage so that the region can enjoy continuous self-sustained growth.

Rostow's theory is criticised for being descriptive rather than analytical (Conkling and Yeates, 1976). Goodenough (1977) indicates a weakness in the model when he points out that it does not adequately identify the mechanisms which link the stages sufficiently well for them to be distinguished or to recognise them in the real world situation. The model is also seen as unrealistic borne out by the flaws in Rostow's own attempt at applying it. The main contribution made by Rostow is to identify a period where development can be stimulated to initiate self-sustained growth, the take-off to self-sustained growth stage. Kolars and Nysteun (1974) discuss the economic and technical growth of the United States following Rostow's model. Although Page (1978) states that the Ciskei is at the take-off stage Rostow's model does not form an integral part of development policy

in the Ciskei other than identifying the Ciskei as being in the stage of take-off to self-sustained growth. The brief description of Rostow's model and its limitations provides a reference point for the terminology and concepts that have been adopted widely in literature such as 'take-off' and 'self-sustained growth.'

The problem of applying the development-stage model is that it is only a partial theory of national or regional economic development. As Bradford and Kent (1977, 164) indicate, "Change is induced from within rather than from outside the nation or region, so the impact of the demand of other nations or regions is neglected." The development-stage model underplays the interrelationships between regions, whereas the changing spatial relationships between regions are a major component of the core-periphery model.

Other models apart from the development stage model and core-periphery model have been proposed as an explanation of development. The dual sector model attempts to explain the imbalance in development that gives rise to some areas being more developed than others. Lewis (1954) focuses attention on labour rather than capital as the key to promoting economic development. In Lewis' model underdeveloped countries are seen as having two sectors. The traditional pre-capitalist sector is based on agriculture with an unlimited supply of labour, largely under-employed, that can be drawn upon for use in the second sector where labour is needed. The second sector is seen as modern, commercial or industrial and capitalist orientated. The model explains the dynamism of the modern sector which draws on the labour pool in the traditional sector, a beneficial result being the relief of population pressure in the traditional rural sector. The model makes two basic assumptions, firstly that there is a surplus

labour force in the traditional sector and secondly that the growth of the modern sector will lead automatically to a rise in the numbers engaged in manufacturing industry. Fisk and Shand (1970) adopt similar assumptions in their model of evolution from subsistence to trade and specialisation and apply their model to two case studies in New Guinea with some success. However, not all conditions such as availability of land and labour are the same in all underdeveloped countries as is demonstrated by the criticisms against the dual sector model.

The criticisms of the dual sector model are particularly aimed at the underlying assumptions. Arrighi (1970) and Beckford (1972) have shown that the presence of a large number of workers in the rural sector is necessary for particular agricultural tasks at specific times of the year. Griffin (1969) states on the basis of his work in Spanish America that activities of non-agricultural work such as leather work, spinning and weaving, that are assumed to indicate under-employment are in fact important to the functioning of the rural community. Under-employment is assumed because the work does not occupy the labourer full-time. However even apart from under-employment there is a problem of unemployment in the rural areas of underdeveloped countries such as the Ciskei which would indicate that a pool of surplus labour exists apart from those under-employed. Myint (1964, 1971) and Baldwin (1966) have sought to restate the dual sector model and refine it in ways that link it to export-growth theory and relax the dependence on population explosion.

The criticisms aimed at the second assumption, that the growth in the modern sector will automatically give rise to a greater number of employment opportunities, are more pertinent than the criticism of the first assumption. Griffin (1969) shows that the percentage of the labour force engaged in manufacturing industry has either

been static or declined which indicates that there has not been sufficient further investment in new industry to stimulate the demand for new workers which the dual sector model postulates. The high unemployment rate in the urban centres of the Homelands (Table 3 in the previous chapter) suggests that the areas where manufacturing industries are established are not in need of labour. However, the low level of education common in most underdeveloped countries including the Ciskei suggests a need for skilled labour.

The unemployment problem in urban areas in the Ciskei renders the dual sector model invalid as a tool for explaining and dealing with underdevelopment in the Ciskei. Furthermore the model fails to give adequate consideration to relationships between the modern and traditional sectors whereas the core-periphery model emphasises the interrelationships and interactions between regions of unequal economic development.

A number of other models such as the diffusion of modernization (Soja, 1968; Gould, 1970), transport and network analysis (Taafe, Morill and Gould, 1963), and the export-base model (Perloff, Dunn et al,1960), have been proposed as explanations of underdevelopment but are not of immediate concern to the study. Both the diffusion of modernization and transport and network models are formulated on the basis of the pattern and spatial process of modernization or development in more advanced countries and are then applied to underdeveloped countries. The transference of models from the west to underdeveloped countries has been criticized as a limitation of the Western approach to development (Baker, 1973; Brookfield, 1973; Cannon, 1975; Gilbert, 1976). Smith (1979) makes a plea for models to be formulated out of the experience and conditions in the underdeveloped countries themselves, indicating a need for research in areas where Western models have been utilized to test how applicable the models are. The diffusion of modernization and transport network models are not directly utilized in the formulation of Ciskeian development policy and therefore are not given further consideration in the study.

The export base model explains growth in a region as arising out of the response of the industries within it to an increase in demand arising outside the region. The model is not applicable in the Ciskei as the only commodity of value exported is labour. Although the diffusion of modernization and other models are not directly relevant to the Ciskei situation of under-development a pertinent model is the core-periphery model.

2. CORE-PERIPHERY MODEL

Myrdal (1957) and Hirschman (1958) have developed two basic models around the idea of a central or core area surrounded by a peripheral zone. Myrdal's model was later expanded by Pred (1965) and others. Friedmann (1966) develops the core-periphery idea further and has applied it successfully to Venezuela. An application of the core-periphery model to South Africa has been made by Board, Davies and Fair (1970).

Myrdal's (1957) and Hirschman's (1958) model analyse the tendency for economic activity to concentrate in one area by the process of what is termed cumulative upward causation (Fig. 6). The process explains the situation where a location begins to develop as a centre for a particular activity and other activities are attracted to the same area as they benefit from being in close proximity to the original industry. Ancillary industries are established to serve the needs of both industry and population. As economic activity continues to agglomerate it becomes cheaper to provide the basic physical infrastructure and amenities to the area.

The agglomerating area draws to itself labour, capital and other commodities from surrounding areas and causes a negative reaction in these areas. As the population moves away, local services or industries can no longer be supported and close down, further

encouraging population to move out of the area. Agglomeration therefore polarises into a few localities (Hirschman, 1958). The polarisation causes 'backwash effects' in the surrounding areas as is illustrated in Fig. 7. (Myrdal, 1957; Lausen, 1962; Pred, 1965). An example of a backwash effect would be the local services and amenities being provided at higher cost per unit. Once a certain threshold of development has been achieved a second set of forces termed 'spread effects' (Myrdal) or 'trickle down effects (Hirschman) diffuse outwards from the centre to other regions, stimulating development in these regions. The spread effects can only take place when the economy is advanced and the transport and communication network has become well established. The communication network also provides the channels whereby information, ideas and resources are directed towards the core area.

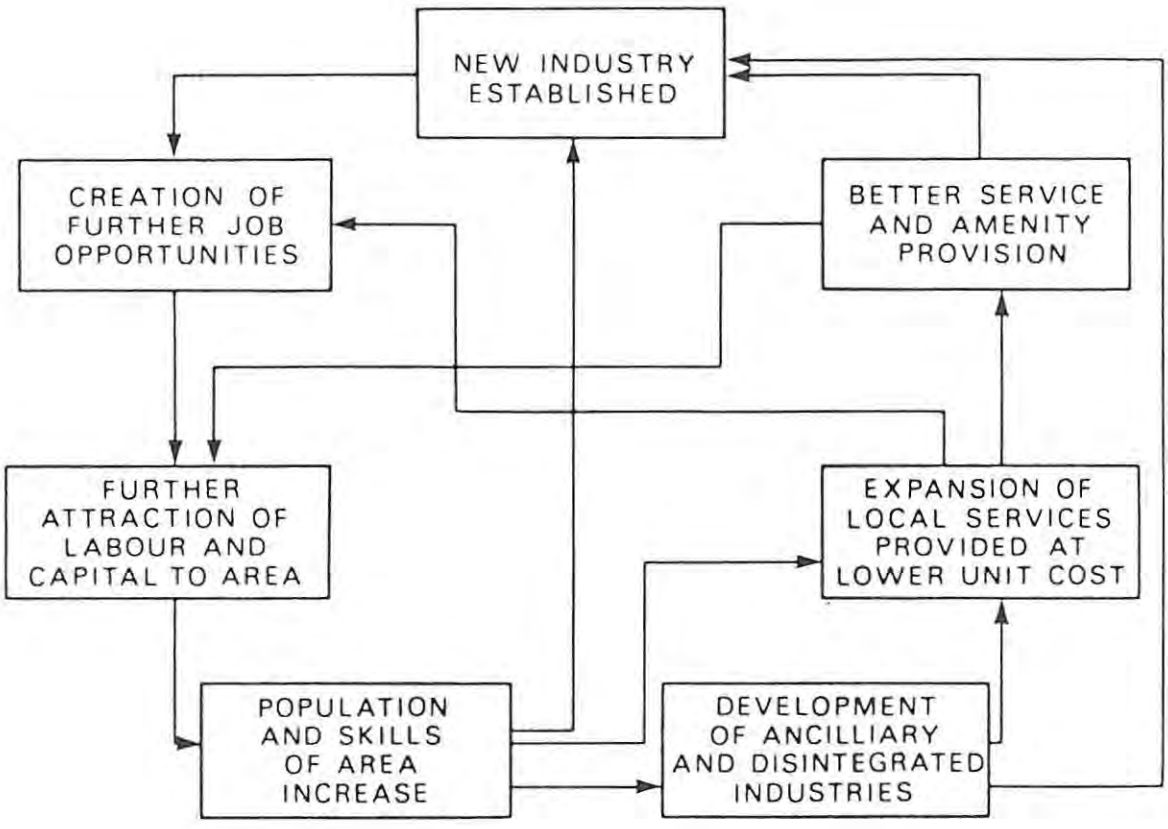


FIG. 6 : CUMULATIVE CAUSATION - POSITIVE
(Myrdal, 1957; Pred, 1965)

Hirschman's model differs from Myrdal's in one important respect in particular. Myrdal shows how the process of economic development inherently leads to regional inequality through the process of cumulative causation. Hirschman suggests that these inequalities are temporary and that, in themselves, they may act as a stimulus to investment and development. Hirschman suggests a system of counter-vailing forces rather than the cumulative causation concept to show how the equilibrium will be restored by state intervention if market forces fail to achieve equal growth. The role of government policy as a factor in determining economic development is reflected in Hirschman's model and in the work of Friedmann (1966) who worked in Venezuela and Odell (1968) in Latin America.

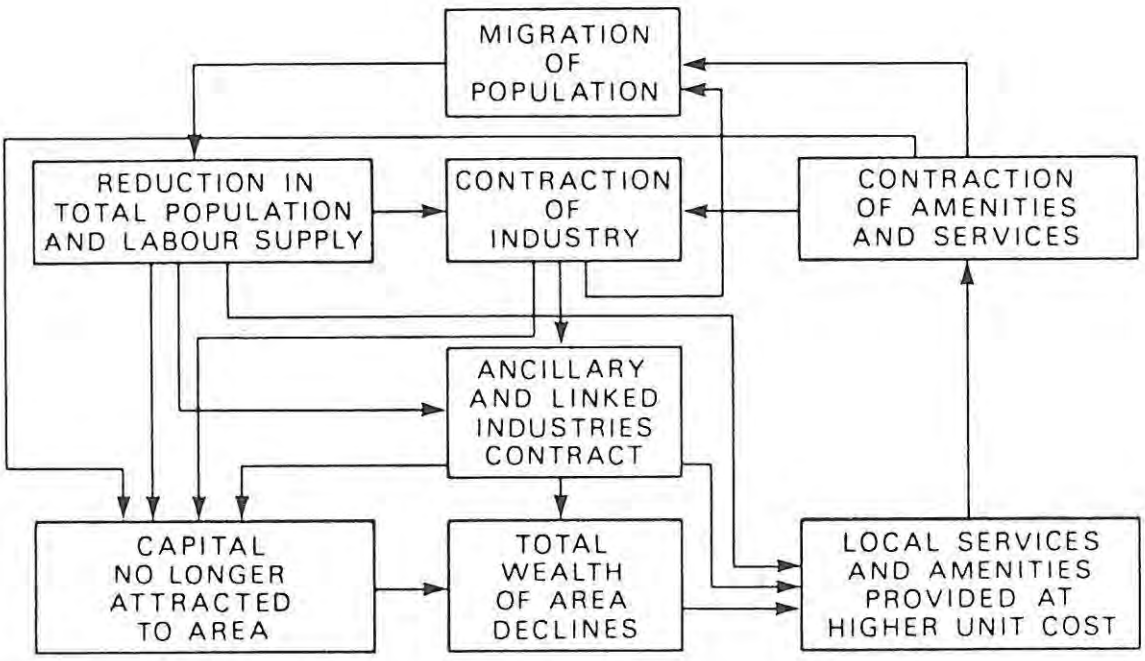
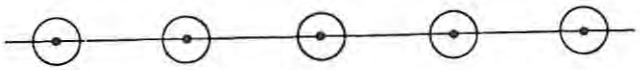
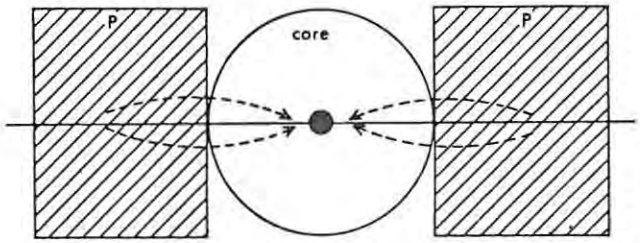


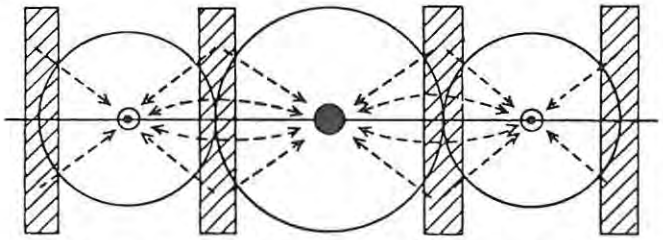
FIG. 7 : CUMULATIVE CAUSATION - NEGATIVE
(Myrdal, 1957; Pred, 1965)



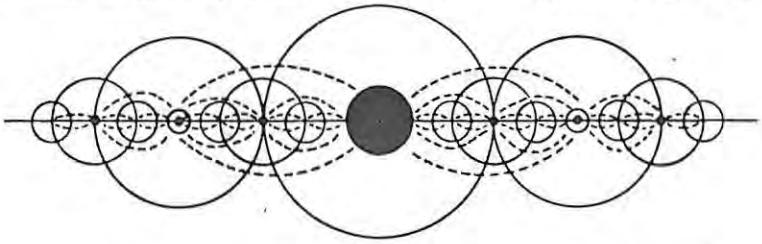
Stage 1. Relatively independent local centres; no hierarchy. Typical pre-industrial structure; each city lies at the centre of a small regional enclave.



Stage 2. A single strong core. Typical of period of incipient industrialization; a periphery emerges; potential entrepreneurs and labour move to the core, national economy is virtually reduced to a single metropolitian region.



Stage 3. A single national core, strong peripheral sub-cores. During the period of industrial maturity, secondary cores form, thereby reducing the periphery on a national scale to smaller intermetropolitan peripheries.



Stage 4. A functional interdependent system of cities. Organised complexity characterized by national integration, efficiency in location, maximum growth potential.

FIG. 8: FRIEDMANN'S DEVELOPMENT MODEL
(Bradford and Kent, 1977)

Mrydal's and Hirschman's concepts are brought together in Friedmann's (1966) development model (Fig. 8). Friedmann describes a sequence of essentially four inter-related regions.

(i) Core regions are concentrated metropolitan economics with a high potential for innovation and growth. The core can be distinguished on several levels; the national metropolis, e.g. Witwatersrand; the regional core, e.g. East London; the local service centre, e.g. Dimbaza or Keiskammahoek.

(ii) Upward transitional regions whose location relative to the core or whose natural resources suggest the possibility of greatly intensified use of resources. Increasing investment, net immigration and increasing capitalisation of agriculture are typical of this region.

(iii) Downward transitional regions are characterised essentially by a rural economy that is stagnant or in decline and the possibility of less intensive development than in the past. These areas are typified by net and selective out-migration, an ageing and unfavourable industrial structure, low agricultural productivity and a generally low standard of living. On a national level the Ciskei would be a downward transitional region.

(iv) Resource frontier regions are peripheral zones of new settlement where virgin territory is occupied and made productive. This region does not apply to the Ciskei at present as development is taking place on already occupied territory.

Smith's (1977) core-periphery structure explaining the distribution of surplus value in South Africa has been adapted to explain the peripheral nature of the Ciskei as a downward transitional region to the core region of East London on a regional level (Fig. 9). The East London region is peripheral to the Witwatersrand core on the National level. On a local level the Keiskamma Irrigation

Scheme can act as a growth industry making Keiskammahoek a core area. The important feature to note in Fig. 9 is that both labour and profits are flowing out from the Ciskei with little return other than surplus labour. Aid is also given to the Ciskei in the form of capital, skilled manpower and technology but this is not attracted automatically by natural economic forces and so has not been included in the diagram (Fig. 9).

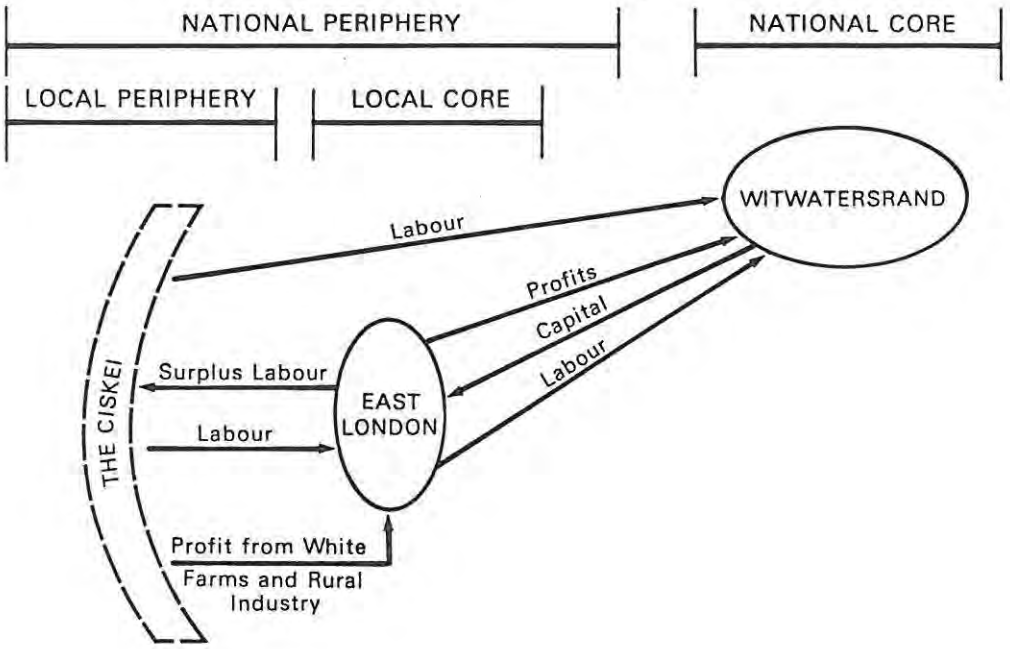


FIG 9: SIMPLIFIED CORE-PERIPHERY STRUCTURE IN SOUTH AFRICA (Smith, 1977)

Friedmann (1966) and Odell (1968) have advocated, on the basis of testing and accepting the model, the establishment of a series of smaller towns or nodes to act as regional development centres or growth centres. Moseley (1974, 121) considers the core region, defined by Friedmann, to be analagous to a growth centre and puts forward a hypothesis based on Friedmann's sequence of inter-related regions: "...around any given growth centre a broadly concentric series of regions might be expected, the major feature being an 'upward transition zone' close to the centre where spread effects predominate, with a 'downward transitional zone' beyond." A number of factors require explanation if growth centres are to be established to bring about benefits to a region. Research is needed into the nature, scale, extent and hierarchical level of growth-centre impact on a region in order to provide a greater understanding of the growth centre concept.

The growth concept is nebulously defined in the literature because of the number of issues unresolved. It is not clear what is expected to 'grow.' Some authors appear to mean growth generally (Hodge, 1966; Lewis and Prescott, 1972) and others are more specific, e.g. Kuehn and Bender (1969) and Casetti, King and Odland (1970) relate growth to employment and Boudeville (1966) to industry. As Moseley (1974) points out there may be relatively little correspondence between the spatial patterns of growth in employment, industrial output, population and per capita incomes. The section on economic growth and unemployment following illustrates the difficulty involved in managing a growth policy that applies to more than one factor. Furthermore there is confusion as to whether absolute increments of growth or growth rates are involved. With respect to the former, growth centre status would probably be given to the largest regional centres, in the case of the latter, growth centre status would be given to certain small towns which have the advantage of growing from a small base. The decision about what growth is referring to is especially important in under-developed countries as these countries are characterised by a number

of small towns and usually not more than one large regional centre. With respect to the Ciskei in particular it appears that growth is taken to mean growth rates as Page (1976) has assigned many small towns as regional growth centres, e.g. Keiskammahoek with a population of 2 858 and Alice with a population of 6 060. However Page does not indicate explicitly what is expected to grow. Although the population threshold needed to support a development centre will vary, Moseley (1974) notes that a population of 5 000 is the generally accepted minimum which is more than the 1970 population of the Keiskammahoek urban area. There is confusion as to whether growth centre applies to more than the built-up urban area.

In addition to the growth centre concept being poorly defined other criticisms have been made. The assumption in the core-periphery model that the integration of the periphery into the core, as evidenced by development centre policies, is beneficial to the former, has been criticized. Slater (1973) criticizes the lack of consideration given to non-spatial factors. The historical dimension is not included as part of the explanation of different levels of development and this detracts from the model according to Slater (1973) and other Marxist or neo-Marxist analysts. However the emphasis given by the model to the inter-dependence between core and periphery regions is an important step forward from previous development models such as Rostow's (1960) development stage model.

Despite the difficulty in defining what is meant by a growth concept and the criticims of it, the concept has been utilized in development policy, e.g. the Ciskei, as a means of promoting development in regions of low prosperity. Moseley (1974) states that there is no irrefutable case for singling out individual isolated towns for preferential treatment to the neglect of other centres in the region. He opts for an overall development strategy taking account of the needs and potential of all centres.

Greater active intervention is required if a growth centre is to be implemented in an area of need rather than potential as is suggested by the cumulative causation processes detected by Myrdal (1957) and Hirschman (1958).

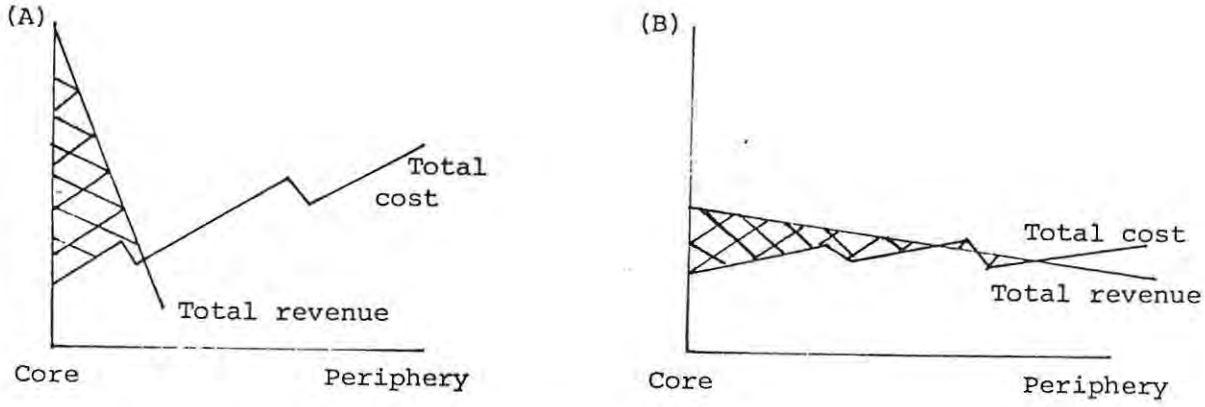


FIG. 10. POSSIBLE RELATIONSHIP BETWEEN DISTANCE FROM CORE AREA AND TOTAL REVENUE AND TOTAL COST IN:
(A) underdeveloped countries; and
(B) more advanced countries
(Stöhr, 1974)

The growth centre concept is utilized in development policy as a means of bringing about growth to a 'peripheral' region that has previously shown little or no sign of developing. Stöhr's (1974) explanation for inter-regional inequalities being more pronounced in underdeveloped countries than more advanced countries, must be considered in the light of growth centres bringing development to an area that does not normally experience growth. Stohr postulates that the cost and revenue curves for underdeveloped and more advanced countries can be represented as in Fig. 10. Stöhr (1974, 26) explains the position in underdeveloped countries as follows: ".... the industrial activities are much more concentrated in newly developing countries - such activities usually extending wavelike over only a short distance from the major metropolitan centre and rarely residing in secondary

or lower-ranking cities" (Fig. 10A). The gap to be bridged between the revenue and cost curves in more advanced countries (Fig. 10B) is much smaller as a result of the more widely diffused information and transport systems, national education programmes, existing regional urban centres, and past experience of coming to terms with development. Stöhr's postulate indicates the need for research into the implementation of growth centres as a means of regional development as in the normal process of development it would appear that secondary cities do not attract industrial activity. Economic growth is often stimulated by encouraging the establishment of industry using methods such as offering tax reductions. The results of establishing such industry should be monitored in order to gain an understanding of the applicability of the cumulative causation process in a stimulated growth situation.

One of the features of the core-periphery model, pertinent to the study is the cumulative causation process (Myrdal, 1957). The propensity for certain industries to attract others and thereby initiate a multiplier effect has important implications for employment opportunities. The establishment of an initial industry opens up possibilities not only for direct employment opportunities to be generated through the establishment of ancillary industries, or the expansion of commerce to meet the needs of an expanding population. An example of an agricultural industry would be a market orientated, highly productive irrigation scheme such as the Keiskamma Irrigation Scheme. The examination of the role played by the Scheme in generating employment includes as assessment of indirect employment opportunities generated through the expansion of business in the village of Keiskammahoek itself. The core-periphery model and growth centre concept, therefore, are central to the examination of the role played by the Keiskamma Irrigation Scheme in generating employment opportunities. It is necessary that a brief evaluation of the western approach underlying the model be made before considering more closely the issues of employment and development in the agricultural sector.

C. EVALUATION OF THE APPROACHES TO UNDERDEVELOPMENT

The Western approach essentially regards underdevelopment as arising out of barriers blocking the path of progress. Nurske (1953) proposes a single economic barrier of lack of capital where poverty is seen as a vicious circle (Fig. 11) requiring a 'big push' to break through it to allow development to continue. Apart from economic barriers, political (Spengler, 1960) and cultural (Hoselitz, 1957; Smelser, 1963) barriers to development have been identified. As Brookfield (1973) notes the problem then becomes an analysis of transition from underdeveloped to developed and finding a means of accelerating the process and moving past checks. The view of development outlined above has given rise to the development-stage model (Rostow, 1960; Barber, 1961; de Blij, 1976). The dual sector (Lewis, 1954; Fisk and Shand, 1970) and modernization (Soja, 1968; Gould, 1970) models are also essentially concerned with removal of barriers to development but approach the problem from the angle of uneven development within the countries themselves rather than discussing underdeveloped countries per se. The core-periphery model (Friedmann, 1966; Board, Davies and Fair, 1970) is one of the few models discussed that recognises the importance of interrelationships between regions. The model attempts to explain these relationships. In so doing the core-periphery model approaches the structural models proposed by Marxists and neo-Marxists who view underdevelopment as a process resulting from the interaction between countries rather than a condition generated within a country (Frank, 1967; Stavenhagen, 1969; Furtado, 1970; Buchanan, 1971).

Frank's (1967) metropole-satellite model is an example of an attempt to explain contemporary and historical relationships within the social structure of the world system. The key to understanding the present structure is seen to lie in the past, particularly the spread

of merchantilism in the 16th and 17th centuries and colonialism of the 19th century. The metropolitan countries of Europe are seen as having become industrially advanced and highly developed nations through the exploitation of colonies over which they held political sovereignty. The analysis of contemporary relationships between underdeveloped and more advanced countries views the colonial relationship as continuing despite the colonies being outside the direct control of the European countries. The tie is maintained through trade flows, private investment and foreign aid programmes. The contemporary relationship is termed neo-colonialism.

The interdependent school of thought adopt a neo-Marxist approach, also viewing underdeveloped countries and more developed countries as one interdependent system (Brookfield, 1975; Smith, 1977). The more advanced countries are shown to be as much dependent on underdeveloped countries as the latter are said to be on them. As with Frank's (1967) model the concern is with a world system of interdependent development (Brookfield, 1975). Due to their macro scale the Marxist and neo-Marxist models are not directly related to the study but serve to illustrate the concern with recognising the interrelationships that exist between countries and regions within countries.

The Western view of underdevelopment has been criticised for transferring inappropriate models derived from the Western experience to be applied to underdeveloped countries (Baker, 1973; Brookfield, 1973; Cannon, 1975; Gilbert, 1976). However, the core-periphery model represents a real attempt at explaining conditions within an underdeveloped country and relationships between the areas of uneven development. Both Friedmann (1966) and Odell (1968) tested their models in underdeveloped countries and are sufficiently satisfied with the results to propose means of improving development through the use of growth centres.

The Western view has also come under attack for being ethnocentric (Brookfield, 1973; Cannon, 1975; O'Connor, 1976; Goodenough, 1977). This criticism is associated with the idea that it is inappropriate to transfer models as the experience of underdevelopment is not necessarily similar to that of the Western experience. Goodenough (1977) also calls into question the idea that the capitalist system and associated costs and benefits is necessarily beneficial for underdeveloped countries. An example would be the use of capital intensive techniques at the expense of offering employment to the large number unemployed in many underdeveloped countries. This issue will be discussed in more detail in the following section on economic growth and unemployment.

The criticisms against the Western approach are partially justified but it must be noted that the models based on the approach reflect differing insights into underdevelopment. The core-periphery model in particular represents an important step forward in providing a framework for development policy. One of the most important features of the model is the recognition given to interrelationships between regions. However, the model is based on the Western approach and two important issues arising out of the Western approach require further discussion before the hypothesis can be formulated, namely the role played by economic growth in creating employment and the development of the agricultural sector.

II. EMPLOYMENT AND ECONOMIC GROWTH

A. ECONOMIC GROWTH AND UNDERDEVELOPMENT

Economic growth according to Toyne (1974, 2) is closely associated to the development of technological skills : ".... because of his innate inventiveness, man's technological ability to reduce the limitations of the environment in a number of ways becomes greater as economic

development proceeds." Implicit is the idea that economic development is associated with the development of technology which in turn encourages economic growth. Goodenough (1977) indicates that development has been interpreted as economic growth. The term development in this sense implies a progressive transition of a country from a non-capitalist economy to one that operates on a capitalist market system, a definition that is in keeping with the Western approach to development. Some economists stress the need for capital to promote economic growth assuming that social development follows automatically (Nurske, 1953; Ginsburg, 1960).

Economic growth is pre-eminent in development thinking and strategies. Robinson (1971) notes how economics became the vehicle for development policy in the 1960's. The concern with economic development is a result of leaders beginning their development crusade by shifting economic resources, rather than changing the existing socio-political structures. It is important that the pitfalls in adopting an essentially economic approach to development be recognised along with the changing emphasis placed on the economic approach.

A particular feature of economic development is the reliance on an injection of capital into an area as a means of developing the area. One of the main concepts giving rise to the idea that lack of capital is a major obstacle to development is the concept of a vicious circle of poverty. Generally attributed to Nurske (1953) the concept is that low productivity leads to low savings, to low investment and therefore to capital deficiency within an economy (Fig. 11). Capital deficiency in turn decreases the possibility of increased productivity. An abundant supply of capital is then envisaged as the key to growth. This concept has come under attack

particularly because it fails to explain the problem of continued poverty in spite of capital injection (Bauer, 1971; Mountjoy, 1971; Reddaway, 1971; Lisk, 1977).

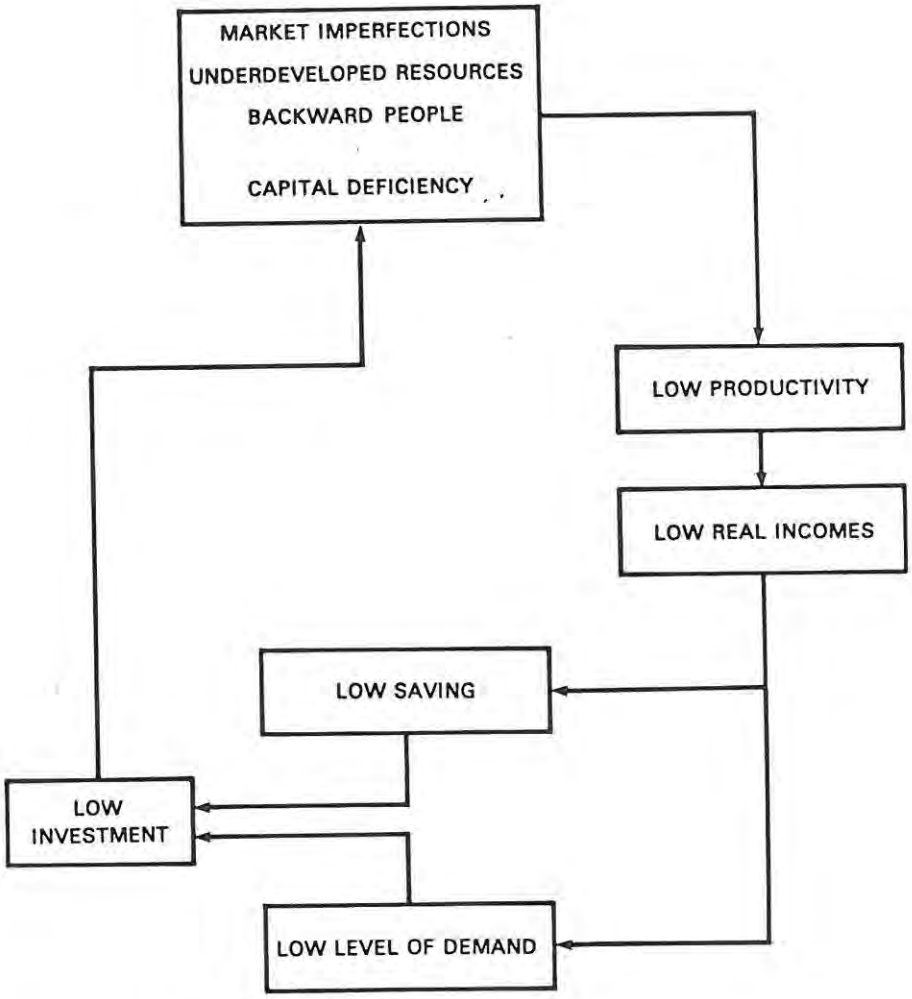


FIG. 11 : VICIOUS CIRCLE OF POVERTY
(Goodenough, 1977)

Reddaway (1971) and Lisk (1977) state that a significant improvement in overall standard of living cannot be obtained simply by increasing the rate of physical capital formation. Baker (1973) believes that the 'infant economies' characteristic of underdeveloped countries lack the complementary skills, institutions and infrastructure to make the money work effectively towards any meaningful development. Bauer (1971) states that the shortage of capital thesis is conclusively refuted by empirical evidence; namely that the more developed western countries started out poor themselves and that there has been a rapid economic advancement in many poor countries, for example countries in Latin America and South East Asia, in recent decades. Bauer (1971) points to the complexity of development in noting that determinants of development are dependent on human aptitudes and attitudes; on social and political institutions and arrangements which derive from these; and on historical experience. "The suggestion that it is poverty as such which acts as the principle obstacle to material progress has diverted attention from the underlying determinants of development" (Bauer, 1971, 44). The dissatisfaction with the injection of capital as a means of growth (Bauer, 1971; Reddaway, 1971; Baker, 1973; Lisk, 1977) is a part of the general dissatisfaction with development being defined only in terms of economic growth.

Boudeville (1966, 168-9) distinguishes between the three concepts of growth, development and progress: "Growth is merely a set of increases in quantities produced; development is growth plus a favourable change in consumer behaviour; progress is development plus a diminuition of social tensions between groups within a society." According to Boudeville's definition the sole concern of growth is an increase in production. Factors such as labour, capital and markets are only important in so far as they contribute towards an increase in production. A favourable change in consumer behaviour relates to the new situation on increased production. Only in the third part of Boudeville's definition is there an indication of 'development' being more than increased material wealth. Although there remains an ecnomic bias because the decrease in social tensions is between 'consumers' an essentially economic category for people.

Development should be for people and not for the sake of increased economic prosperity per se (Nyerere, 1968; Seers, 1972; Brookfield, 1975). Seers (1972, 21) questions the prominence of economic growth in development studies; "Development means creating the condition for the realisation of human personality. Its evaluation must therefore take into account three linked economic criteria: whether there has been a reduction in (i) poverty, (ii) unemployment, and (iii) inequality."

The human dimension in development is often ignored and Seers (1972) refocusses attention on the fact that development is for people. Seer's criteria of reduction in unemployment as a means of evaluating the degree of success of a development strategy is applied in the examination of employment opportunities generated by the Keiskamma Irrigation Scheme. In noting that the criteria are linked, Seer's comments are in line with the author's contention that the provision of employment is a necessary step towards alleviating poverty and inequality.

B. ECONOMIC GROWTH AND EMPLOYMENT STRATEGIES

Byerlee and Eicher (1974) state that the employment problem can be examined within the context of several widespread but related problems in the developing world:

- open and partial unemployment, particularly in urban areas;
- low productivity labour and seasonal unemployment in agriculture;
- wide disparities in personal income distribution; and
- significant disparities between urban and rural incomes.

Open or partial unemployment consists of those persons seeking work at the going wage rate and who are not employed (Maasdorp, 1977). The second problem relates to underdevelopment where workers are not working at full capacity. The third and fourth problems introduce the dimension of migrant labour as the higher income in urban areas

and the lack of employment opportunities in the rural areas encourages migration from rural to urban areas. The migration of labour from areas of low income to areas of high income is related to the process of negative cumulative causation identified in the core-periphery model. Recognising the problems, outlined by Byerlee and Eicher above, numerous economists and policy-makers (Johnson, 1969; Cleave, 1970) have replaced the traditional emphasis on economic growth as the primary indicator of development with a re-definition of development to include the multiple dimensions of growth, employment and equity.

Maasdorp (1977) concurs with Byerlee and Eicher (1974) in saying that the unemployment crises require a fundamental rethinking of development strategy and in particular a re-consideration of the past emphasis on economic growth. Seers (1970, 380) states that "....perhaps the hardest step for those who have worked for many years in the development field is to realise the limited relevance in itself of the rate of economic growth." Toyne (1974) indicates that in both developed and developing areas alike, the effect of technology has been to increase the economic wealth and productivity of rapidly expanding populations, but at the same time as Galenson (1971, 1) remarks "....satisfactory growth of the national product is not enough to provide a guarantee against severe unemployment." Toyne (1974, 109) suggests that for unemployment problems to be minimised or solved, "....locational and economic decisions must be based on the optimisation and rationalisation of the relationship between the requirements of different firms and industries and the supply of labour at different locations." It must also be pointed out that by the 1960's a growing number of underdeveloped countries had included employment objectives in their development plans. A major consideration is the use of labour intensive techniques rather than capital-intensive.

Labour-intensive activities may be promoted either by direct action

or indirectly by changes in relative prices of capital and labour. Labour subsidies may be implemented as a means of changing the relative price of capital and labour. Black (1980) comments that capital intensive techniques may appear more efficient than labour intensive techniques. Efficiency measured in terms of given market prices of capital and labour does not necessarily reflect the social opportunity cost of employing labour in under-developed countries. Strategies promoting employment at the expense of output are considered socially desirable. Silberfein (1976, 159) criticises the use of capital intensive schemes questioning whether capital intensive projects are the ".... appropriate vehicles for modernisation in a typical African country where land and labour are relatively abundant and capital and skilled manpower are scarce factors of production."

The plea made for employment orientated development studies (Seers, 1972; Byerlee and Eicher, 1974); the inability of economic growth to automatically reduce unemployment (Bauer, 1971; Reddaway, 1971;) the disenchantment with capital intensive strategies in areas where labour is abundant (Silberfein, 1976; Black, 1980); and the unemployment problem (Maasdorp, 1977); all point to the need for development strategies, such as resettlement schemes, to be examined in terms of the contribution made to reducing unemployment. The following section discusses the importance of studying the unemployment problem in the rural sector.

III. DEVELOPING THE AGRICULTURAL SECTOR

The previous section illustrates the emphasis placed on economic growth as the vehicle of development policy (Robinson, 1971) and the growing mistrust in conceiving development only in terms of economic growth. Greater importance is given to industrial development in a concentrated economic growth policy because of the higher returns on capital than in agricultural development. The effect economic growth policy has had on development in the

agricultural and industrial sectors will be discussed. The reduction of unemployment (Seers, 1972) is considered in the context of developing the agricultural sector. Finally, development strategies, particularly resettlement schemes are reviewed.

A. AGRICULTURAL DEVELOPMENT VERSUS INDUSTRIAL DEVELOPMENT

Up to the mid-1950's most economic plans in the Third World aimed at a balance between the expansion of the agricultural and industrial sectors, with increased farm output setting the pace of industrialisation. South Asian countries such as India and Pakistan departed from this policy and invested between 25 and 30 per cent of their total plan outlay in industrialisation (Robinson, 1971). This action on the part of the South Asian countries opened up an argument as to whether a concentration of capital resources on the industrial sector would initiate the economic advancement aimed at in the whole economy, including the agricultural sector. The factor in favour of industrial expansion is that advanced technology creates large amounts of capital swiftly and provides the resources necessary for its own development, whereas agriculture produces only a little capital slowly. Inevitably, in the light of the argument developed in the previous section, the advantage of best ouput for capital invested is accompanied by the disadvantage of unemployment being created. Unemployment is a result of labour saving technology being used in creating the output. The call for technology appropriate to the physical, cultural and political milieu has recently been made by Kassupu (1979). Robinson (1971) states that Kaldor opposes the idea that employment is a function of the technology selected stating that the use of advanced methods of production and organisation will pay for more employment and social

improvements than intermediate methods. As Robinson points out Kaldor's argument only holds if the political structure is geared towards redistributing wealth from the city to the rural areas once the extra wealth has been produced. Robinson is supported by Bauer (1971) and Bishay (1974) who contend that a concentration on capital as a means of development ignores the underlying determinants of development plans. Should the political system not be able to redistribute wealth serious consideration needs to be given to development of the agricultural sector rather than the industrial sector.

Development of the agricultural sector is not only important in that it is a move towards reducing unemployment but also because the agricultural sector must feed those living in the urban areas (Knight and Newman, 1976) and supply the industrial sector with raw materials (Nicholls, 1964; Floyd and Adinde, 1967; Mountjoy, 1971). Capital earned on export crops is another important contribution made by agriculture (Long, 1977). Development strategies defined purely in terms of economic growth are liable to ignore the importance of developing the agricultural sector alongside the industrial sector, because of the rapid capital accumulation in the industrial sector. However, the agricultural sector is not separate from the industrial sector and forms an important base for development in the industrial sector. According to Nicholls (1964) agricultural progress contributes to industrial development by providing raw materials such as cotton and wool for industry, by providing food to meet the needs of the non-agricultural sector and by raising the incomes of the rural population. The raised incomes increases the purchasing power to buy new industrial goods and increases savings which could be mobilized to finance industrial development.

The need for the agricultural sector in underdeveloped countries to be developed alongside the industrial is apparent both in terms of the importance of the agriculture sector as a supportive base

and in terms of the bulk of the population finding their livelihood in this sector. In the Ciskei 43% of the de jure population are engaged in some form of agricultural activity. Strategies aimed at developing the agricultural sector are discussed in the following section.

B. STRATEGIES FOR DEVELOPING THE AGRICULTURAL SECTOR

The strategies devised for developing the agricultural sector concentrate on improving production so as to improve the economy as a whole. The increased production is used to feed the rapidly increasing population of underdeveloped countries, to provide raw materials for industry, and to contribute to foreign exchange through exports. Strategies fall into two broad categories. Firstly those that aim at improving agriculture by working on and modifying the existing method of production such as by offering advice through extension services or access to market through co-operatives. The second category involves strategies that introduce a new structure aimed at a radical improvement in agricultural production as opposed to the gradual improvement generally experienced with the first type of strategy. Examples of strategies involving a radical change include resettlement schemes and irrigation projects. Silberfein (1976) defines resettlement schemes as the relocation of selected participants within schemes that have been planned and executed by some agent or agency. A resettlement of people is often involved because a large scheme is likely to interfere with existing patterns of land settlement due to the large amount of land required for farming and the building of dams for irrigation. The section will concentrate on discussing resettlement schemes as a strategy for developing the agricultural sector as the study aims at examing a resettlement scheme in terms of the employment it generates.

Resettlement is a broad term relating to a variety of types of schemes. Daniel (1970, 636) indicates the essential features of

resettlement: "Resettlement implies both a change in settlement patterns and a change in the pattern of land use, either in an entirely new area not previously occupied or within the area previously settled." Daniel adds that an equally important aspect of resettlement is the hope that a change in attitude towards the land will accompany physical changes. The factors initiating resettlement schemes vary and influence the form the schemes take. The building of large dams such as the Volta dam leads to a large area being inundated requiring that a number of poeple be moved off the land, e.g. 80 000 people were removed when the Volta dam was built. The necessary movement of people is often taken as an opportunity for introducing the people to a new environment that is more conducive to increased agricultural production than the one abandoned. The Volta river project is an example where the building of a dam required the resettlement of people and the resettlement was planned so as to upgrade the farming techniques. Bringing about improvement in agricultural production can be a major aim of a resettlement scheme. This type of resettlement scheme is often based on irrigation such as the Keiskamma Irrigation Scheme examined in the study. Resettlement of people can also be undertaken for health reasons. Chambers (1969) gives the example of the Anchau Rural Development and Settlement Scheme in Nigeria where people were removed from a Tsetse fly area. The type of resettlement scheme under review is related to the Keiskamma Irrigation Scheme where a large amount of land has been utilized in improving agriculture through the use of modern techniques and methods with irrigation as an important component.

There is a general disappointment with the results of resettlement schemes (Lewis, 1964; de Wilde, 1967; Mountjoy, 1971) as only the Gezira scheme has proved reasonably successful. It is apparent that changes induced on a scale as large as a resettlement scheme require research and monitoring particularly before the inception

of the scheme and in the early stages of the scheme (de Wilde, 1967). Despite the general lack of success with resettlement schemes, Silberfein (1976) notes they are still seen as a panacea for many social and economic ills. The record of failure of schemes in the past and the urgent call for planners to be aware of the situation and problems faced in under-developed countries (Brookfield, 1975; Berry, 1976) opens the way for studies examining resettlement schemes established recently in underdeveloped countries.

One of the proposed aims of resettlement schemes is that the new ideas and use of more efficient farming methods spread to other areas particularly in the vicinity of the resettlement scheme. Silberfien (1976) points to the failure of resettlement schemes to carry out this aim when he describes them as islands of agricultural change rather than diffusion centres for innovation and ideas. In Hirschman's (1958) model the scheme would be expected to act as a diffusion centre. A certain amount of capital is required when using sophisticated technology in resettlement schemes and the farmers in the vicinity of the scheme do not normally have ready access to capital in underdeveloped countries. This factor of unavailability of capital is just one example of the difficulties involved in expecting farmers not on the scheme to adopt the same ideas without the supporting economic structure. The failure of capital-intensive schemes to promote development beyond the scheme itself is again an indication that capital is not on its own the answer to initiating development in underdeveloped countries. Berry (1976) indicates that a realistic assessment of needs is required if positive responses to induced changes are to be initiated. Examples of needs in underdeveloped countries in addition to capital are credit and market facilities. As a result of the rapidly increasing population an ever present need is for employment and in view of the need to reduce unemployment

resettlement schemes dependent on labour resources would most benefit underdeveloped countries.

SUMMARY

A criticism of development theory and plans noted in previous sections is that to concentrate on economic growth, wider issues have been ignored. Economic growth essentially aims to gain the highest return for capital invested and such an aim can be costly in other areas. Sophisticated labour saving technology is employed which decreases the number of employment opportunities available, whereas development should aim at reducing unemployment (Seers, 1972). Furthermore the industrial sector is often given precedence over the agricultural sector in development plans because of the faster and higher returns on capital made in the industrial sector. Again, advanced technology is needed to ensure the highest economic efficiency and employment is reduced. Developing the industrial sector according to economic growth principles ignores the large number of people in need of employment in the agricultural sector and the importance of agriculture as a supportive base for industry. A review of strategies employed in developing agriculture, especially that of resettlement schemes, has also revealed that if the aim is to stimulate economic growth, capital intensive methods are utilized despite the need for employment opportunities. A scheme may be in a position to stimulate economic growth but be unable to reduce unemployment. The failure to reduce unemployment undermines the probability of the scheme bringing about development (Seers, 1972). In addition, the possible failure of schemes to reduce unemployment indicates a need for an evaluation of resettlement schemes in terms of the contribution made to the development of the region or country in which they are found.

IV. FORMULATION OF HYPOTHESIS

A. RESEARCH AIMS AND OBJECTIVES

Adopting Seers (1972) definition of development to include the

reduction in unemployment and in view of the need to develop the agricultural sector (Mountjoy, 1971; Knight, 1976), the study aims to examine the role of the Keiskamma Irrigation Scheme in generating employment opportunities. The disenchantment with the use of capital intensive techniques in areas where capital is a scarce resource and labour abundant and in need of employment (Silberfein, 1976; Black, 1980) requires an assessment of the technology used on the scheme in terms of its capacity to save labour for the sake of increased production (Maasdorp, 1977; Black, 1980). The requirements for farming or working on the scheme need to be examined in terms of the local population's ability to meet these requirements. In order to present alternative employment to employment outside the region, namely migration, the scheme must offer employment opportunities that are above the level of qualification and experience of the rural population such as education requirements being at the education level of the local populace. Finally, the scheme could contribute towards initiating a process of cumulative causation (Myrdal, 1957; Hirschmann, 1958) by triggering off other developments such as an expansion in commerce, which in turn would open further employment opportunities.

Considering the possibilities outlined above, the following objectives have been set to carry out the aims of the study.

(i) The employment opportunities for settler farmers will be examined. The qualifications for a settler farmer will be assessed against the corresponding ability of the local peasant farmers to meet these qualifications. The settler farmers will be examined for factors and abilities that may have influenced the success of their application. The results of the examination of settler farmers will contribute towards establishing a set of criteria to evaluate the possibility of peasant farmers being accepted as settler farmers. The main objective is to examine opportunity for the local populace to farm on the Keiskamma Irrigation Scheme.

(ii) The technology used on the scheme and the number and nature of wage paid jobs available will be examined in order to assess the efforts made by the Scheme to offer maximum employment.

(iii) Employment opportunities created indirectly by the Scheme will be investigated. Recent developments in commerce in the village of Keiskammahoek will be surveyed and also the willingness of the population to shop in Keiskammahoek will be assessed.

B. HYPOTHESIS

The main concern of the study is with employment opportunities offered directly by the Scheme. It is hypothesised that employment opportunites for the local populace have been created by the Keiskamma Irrigation Scheme as a result of:

(i) the opportunity to become settler farmers;
(ii) wage employment on the Scheme.

A further point for consideration in the study is the employment opportunities created in the village of Keiskammahoek resulting indirectly from the Scheme acting as a growth centre.

CHAPTER THREE

KEISKAMMAHOEK EMPLOYMENT SURVEY

Chapter Three details the collection and analysis of data needed to examine the role of the Keiskamma Irrigation Scheme in generating employment opportunities. The examination extends firstly, to employment opportunities on the Scheme itself. The employment opportunites on the Scheme incorporate full-time farming and wage employment. The second area examined is employment opportunities created in the village of Keiskammahoek as a result of the Scheme through, for example, the expansion of commerce.

To gauge full-time farming opportunities, information was needed from settler farmers to establish the qualifications and requirments necessary to be a settler farmer. Information was obtained from the peasant farmers to assess whether they were able to meet the educational and other standards required of a settler farmer. Further information was necessary on the number and nature of wage employment opportunities on the Scheme as well as to examine whether the peasant farmers were qualified to take up wage employment opportunities.

In order to assess the expansion of commerce, it was necessary to interview the shopkeepers in addition to obtaining information from the peasant and settler farmers concerning their preferences for shopping in Keiskammahoek. The willingness of the peasant farmers to take up employment opportunities as settler farmers, employees on the scheme or as employees in the village of Keiskammahoek were considered.

The larger population groups, namely the peasant and settler farmer groups necessitated sampling because of time and fund limitations. The first section of this chapter outlines the sampling procedure

used with the peasant and settler farmer groups. The second section details information that was needed from the various population groups. The third section outlines the Questionnaire employed to extract the information needed. The pilot study conducted to refine and overcome problems encountered with designing the questionnaire is detailed. The fourth section describes the way in which data were processed into a form suitable for the analysis carried out in Chapter Four.

I. SAMPLING PROCEDURE

The need to sample arises when the size of the population makes it difficult, within the limits of funds and time, to collect information needed from every member of the population. A sample is selected in order to obtain data from which to make inferences about the total population (Warwick and Lininger, 1975). The type of inferences and degree of statistical validity required influences the choice of sample size. The nature of the population also influences the sample size needed as a smaller sample is needed from a homogenous population than from a heterogenous one of the same size (Babbie, 1973). Only two of the population groups require sampling, the settler farmers and the peasant farmers. There were nine shopkeepers, a small enough group for each one to be interviewed. The peasant farming population is located in 16 locations within the study area. Each location contains a number of villages where the peasant farmers have been resettled according to the plan put forward by the Tomlinson Commission (Tomlinson Report, 1955). The rural population is congregated into villages with the cultivated land and grazing adjacent to the villages. As explained in Chapter One, the land is not able to support the village population and, as a result, a number are unemployed or migrate to find work in major industrial centres in South Africa, such as the Witwatersrand, East London or Port Elizabeth. The peasant farming population was drawn from the villages in the locations as one of the concerns of the study

is to see to what extent the Scheme, by providing employment reduces the incidence of migration and unemployment in the vicinity of the Scheme. There were at the time of study approximately 35 villages in the area and approximately 3 000 households. As it was impractical for each household to be interviewed, it was necessary for a sample to be taken from either a few households in each village or more extensively from many households in one village. It was decided to sample a number of households from one village and this had the added advantage of reducing the size of the parent population. The decision is explained in more detail when discussing the administration of the Questionnaire in Section Three of this chapter.

The selection of one village as opposed to many is made possible on the assumption that the population is homogenous in areas pertinent to the study, namely, level of education, problems of migration and unemployment, and semi-subsistence farming methods. All the villages were situated in the rural areas of the Ciskei. Semi-subsistence farming was generally practised and of note was the limited production, insufficient to support the entire village population. Levels of production would vary according to the difference in soils and local climatic conditions. However, in no single village was production sufficiently high to alleviate the problems of migration and unemployment. The villages were also homogenous in terms of levels of education in the sense that they had relatively equal access to primary schools. Primary schools are situated in a number of villages such as at Upper Gxulu. There is one senior school in the vicinity of the Keiskamma Irrigation Scheme, located at St. Mathews Mission in close proximity to the village of Keiskammahoek.

Consideration was given to one criterion in particular when selecting a village for the study, namely proximity to the Scheme. The village

closest to the Scheme is likely to have had more more contact with the Scheme and therefore the respondents would be better able to answer such questions as whether they would like to farm or work on the Scheme. The Lower Gxulu village, situated on a ridge overlooking the Scheme, as illustrated in Fig. 4 in Chapter One, was selected for study. Lower Gxulu, referred to as Gxulu hereafter, contains 445 households, from which a random sample of 110 was drawn, as discussed below.

There were 52 settler farmers on the Keiskamma Irrigation Scheme at the time of the survey (1979). Information was solicited from the settlers to assess the criteria put forward by the management of the Scheme for selecting settler farmers. Further information was required to assess whether additional criteria aided an individual in being selected as a settler farmer such as having had training in agriculture. The results were used to examine the possibility of the village population being accepted as settler farmers. The settler farmer population were an understandably homogenous group as they would all have passed Standard Four and would all be within the working age group. The random sample from the settler farmers group could be small because of the homogenous nature of the population.

Of the sampling methods available two in particular were considered. The first was based on detecting differences in the proportions of the two samples, - settler farmers and village farmers. However, as comparisons between the two samples only comprises a small part of the study, the second method was chosen in preference to the first.

The second method of sampling is based on determining the maximum error in any estimated percentage. The nature of the statistical analysis required in the study is not high due to the level of measurement of much of the data being ordinal. For example, the attitudinal data does not permit the application of rigorous statistical analysis. A considerable portion of the data analysis were conducted using percentages. The second method, therefore, appears suitable to meet the requirements of the analysis carried out in the study.

The formula used to obtain the sample sizes according to the second sample procedure is given as:

$$100P \pm 100Z_{\alpha/2} \sqrt{\frac{P(1-P)}{n}\left(1 \frac{n}{N}\right)}$$

where P is a specific attribute:
P is proportion of individuals with the specific attribute

$Z_{\alpha/2}$ is the confidence interval

N is the total population
n is the random sample size.
Using the above formula it was calculated that a sample size of 110 of the total 445 dryland households allowed 90% certainty that the true percentage lies within 6,7% points of the estimated percentage. Considering the more homogenous nature of the settler households a small sample size would suffice. A sample size of 20 out of the total of 52 was selected as it gave 80% certainty that the true percentage lies within 11,1 percentage points of the estimated percentage. The sample size was also calculated on the basis of using a random sampling procedure. Warwick and Lininger (1975, 76) define the simple random sampling as ".... a process by sample selection in which units are chosen individually and directly through a random process in which each unselected unit has the same chance of being selected as every other unit on

each draw." A list of the settler households was obtained satisfying the requirements of a list that uniquely identifies each element. A random numbers Table was used to draw out 20 households and these 20 constituted the sample settler group analysed in the study. The method was adopted for the Scheme as a list was available that met the stringent requirements of simple random sampling. A number of variations of simple random sampling can be considered when the requirements such as a list of population, cannot be met. There was no list of the Gxulu households available. The variations include stratification, clustering, unequal probabilities of selection and systematic selection sampling methods. Stratification is the ".... process of dividing the population into sub groups in order to carry out separate selections in each (Warwick and Lininger, 1975, 76). This method did not apply to the study as both groups were interviewed as a whole. Cluster sampling where elements for the sample are chosen from the population as a group rather than singly, was therefore inappropriate as elements were chosen singly.

The third method was also unsuitable as unequal probabilities of selection allows some elements a higher chance of selection than others and the elements required an equal chance of selection in the study. The fourth method, systematic selection was the most suitable for the study. According to Warwick and Lininger (1975, 101) systematic selection is ".... a method of selecting units from a list through the application of a selection interval, I, so that every Ith unit on the list, following a random start, is included in the sample." The interval I, is determined by dividing the population size (N) by the desired sample size (n). The interval for the Gxulu households was four and therefore every fourth household was selected starting from one selected by a random number. An important advantage of the systematic selection was the ease of administration as the questionnaire was largely administered by a research assistant who had no previous training in survey techniques.

A disadvantage could be a bias in a coincidence between the selection interval and a cyclical repetition of some characteristic. As the selection was based on the rows of households, the chance of a bias of this nature was unlikely. Generally the bias is apparent in lists drawn up according to a specific scale of criteria such as the size of loans received by each borrower in a survey of credit union borrowers (Warwick and Lininger, 1975).

In summary the lower Gxulu village was chosen for study and 110 households were selected for interviews according to a method of systematic random sampling. The 20 settler households were selected by a method of simple random sampling. The information needed from these two groups as well as that required from the shopkeepers and the Scheme Management is discussed in the next section.

II. SCHEME-GENERATED EMPLOYMENT IN THE UPPER KEISKAMMA RIVER VALLEY

In examining the question of employment generated by the Keiskamma Irrigation Scheme three areas required attention, namely full-time farming on the scheme; wage employment on the Scheme and wage employment generated in the village of Keiskammahoek as a result of the Scheme. Information on full-time farming opportunities was obtained from the settler farmers and the Gxulu village farmers. The information needed on wage employment on the Scheme was obtained from the office records and Gxulu village farmers. As regards the third area of interest information needed on wage employment in the village of Keiskammahoek was collected from the shopkeepers as well as settler farmers and the Gxulu village farmers. The information needed in each of these three areas is outlined below.

A. FULL-TIME FARMING OPPORTUNITIES ON THE KEISKAMMA IRRIGATION SCHEME (See Appendix A)

1. SETTLER FARMERS

Information on characteristics or qualifications that contributed towards settler farmers being selected for the Keiskamma Irrigation

Scheme was obtained. Not all the information was obtained directly from the settler farmers themselves as information was also gained from the Manager of the Scheme. The characteristics of education, age, sex, and agricultural experience were selected as important in reflecting the type of people chosen. Information gained from the settler farmers would help evaluate the possibility of Gxulu village farmers becoming settler farmers.

The results would contribute towards the testing of the first part of the hypothesis which stated that the local populace would be able to find work on the Scheme, either as settler farmers or as employees earning a wage. The settler farmer respondents were therefore asked how old they were, what sex they were, and what standard of education they had passed, and whether they had had any agricultural training or experience (Questions Two, Three, Four and Five in Appendix A).

To assess how many settler farmers came from urban areas rather than rural areas the settler farmers were asked where their home town was and the nature and place of their previous employment (Questions 30, 31 and 32 in Appendix A). The settler farmers were also asked in Question 33 their reasons for coming on to the Scheme to assess how high agricultural interest rated in their being accepted on to the Scheme. In case the information varied considerably between settler farmers according to the length of occupancy on the Scheme, the settler farmers were asked to indicate when they first started on the Scheme. The study is concerned in part with the extent to which the employment provided by the Scheme reduces the incidence of migration and therefore it was necessary to know the number of settler farmers who came from Keiskammahoek District. The settler farmers were asked where their homes were prior to coming on the Scheme.

Further information was required from the settler farmer about the rest of his/her household. The household members of a settler farmer would have the advantage over other applicants of being familiar with how the Scheme works. The age, sex and education of each household member was requested in order to see how many males would qualify as settler farmers (Questions on Household Members - Section V).. Employment and technical training details were also asked to see if there were any additional factors in favour of the members of settler households being accepted should they apply to go on the Scheme.

2. THE GXULU SAMPLE

The Gxulu sample was selected partly to determine whether they would be able to apply as settler farmers on the Keiskamma Irrigation Scheme. The factors most likely to influence the success of the village respondent's application were sex, age, education and agricultural experience. Accordingly, questions were formulated to elicit this information from the respondents (Questions Two, Three, Four and Five and Six in Appendix A).

A section of the Questionnaire answered only by village respondents was that of attitude towards migration. Information was needed on the respondents' view of working in the Keiskammahoek area and on the Scheme itself. It was decided that this information should be included in view of the importance of the behavioral perspective on the subject of employment opportunities being available in the vicinity of the workers' home (Wilson, 1972). In addition, there has been a call for the response to resettlement schemes to be taken into account (de Wilde, 1967; Knight, 1976; Silberfein, 1976). In addition, the selection committee for the irrigation scheme is interested in the reasons for applicants wanting to join the Scheme. The questions asked related not only to how the respondent feels about working in Keiskammahoek but also how he/she feels about the rest of the household working in the Keiskammahoek area.

The respondent was also asked whether he/she would like to work on the Scheme, firstly as a settler farmer and secondly as a scheme employee and to give reasons for his answers. The main reasons given would supply information useful for assessing what perceived advantages and disadvantages there were to taking up employment opportunities on the Keiskamma Irrigation Scheme.

B. WAGE EMPLOYMENT OPPORTUNITIES ON THE SCHEME

For the purpose of the study it was necessary to know how many were employed for wages on the Scheme so as to assess the number of employment opportunities available. To assess the ability of the Gxulu sample to take up the wage employment opportunities, it was necessary to know the type of work opportunities offered on the Scheme. As the information needed on Scheme employees related only to the number employed and the nature of the employment opportunities, it could be gained from the records kept at the office on the Central Unit.

Information was required from the village farmers concerning their ability to take up the wage employment opportunities on the Scheme. The information needed related essentially to the training and experience held by the Gxulu sample, (Questions Seven and Sixteen). The questions eliciting this information asked for details about technical training received as well as the type of experience of the employment held by the Gxulu respondent. The respondents were also asked what driving licenses they held (Question Eight) as this has bearing on whether they could drive tractors or milk lorries. The information gained on technical training received by Gxulu respondents will help to assess whether the local populace have the expertise to operate on a mechanised scheme. In addition, Page's (1976) assumption that population in the rural areas acquire skills and training while working in South Africa, can be assessed.

C. WAGE EMPLOYMENT IN THE VILLAGE OF KEISKAMMAHOEK

Employment opportunities may open up through commerce developing as a result of the increased buying power of settlers and employees on the Scheme.

The information required to investigate this possibility is essentially concerned with changes that may have taken place since the Scheme was started. Information was needed firstly on any changes that had taken place in the number of employees, secondly on changes in the quantity and types of stock kept in the shop and thirdly on any changes experienced in turnover. The information was obtained through the use of an informal interview technique. All nine shopkeepers in Keiskammahoek were interviewed.

A final consideration was to ask the shopkeepers to what they would attribute the changes they had noted. As mentioned when discussing the study area, (Page 19, Chapter 1), two events apart from the Keiskamma Irrigation Scheme could have brought about changes in the village of Keiskammahoek, namely the sawmills and the resettlement of people from Humansdorp at Boma Pass. The shopkeepers were asked to state if possible, whether they thought the Irrigation Scheme itself had had any impact on their business, or whether other factors such as the sawmills or Boma Pass Resettlement had made the difference.

Another aspect associated with the employment opportunities indirectly generated by the Keiskamma Irrigation Scheme is whether the people of Keiskammahoek want to shop in the village of Keiskammahoek rather than other towns, such as King Williamstown or East London (Questions 10 - 14 in Appendix A). The Gxulu sample were asked where they preferred to do, firstly, inexpensive shopping such as groceries and secondly, more expensive shopping such as radios and furniture. The reasons respondents gave for their answers were recorded enabling a fuller assessment of shopping preference. In addition respondents were asked whether they would prefer to shop in Keiskammahoek if the goods were available (Questions 13 and 14 in Appendix A). The questions pertaining to the Gxulu farmers wanting employment in the Keiskammahoek district would include working in the village of Keiskammahoek itself. These questions include Numbers 18 to 23 in Appendix A .

The settler farmers were asked the same questions concerning where they would prefer to shop and why. The information provides an idea of where the settler farmer is likely to spend the money he has earned on the Scheme. Should the money be spent in the village of Keiskammahoek itself, the economy of the village would be maintained or boosted and new jobs possibly created.

The section demonstrates the need for the following representative information. General personal details were required such as age, sex, as well as information on education, agricultural and technical experience, and nature of previous employment. Attitudinal information was also required on shopping preferences and for place of work. The following section deals with the Questionnaire constructed to obtain the information needed.

III. QUESTIONNAIRE DESIGN

The majority of respondents were Xhosa speaking and as a result it was necessary to translate the Questionnaire into Xhosa, further complicating the construction of the questions. The types of questions needed are outlined, followed by a discussion of the translation of the questions.

A. TYPES OF QUESTIONS

Various methods presented themselves as a means of gaining the information needed for the study. Open interviews where open-ended questions are utilized, could be conducted. The absence of any restrictions placed on the form of the answer has the advantage of allowing a maximum of information to be recorded with little bias from the researcher (Warwick and Lininger, 1975). However, the variety of responses makes the development of a coding scheme difficult. The difficulty lies in making a scheme that encompasses the full range of answers and provides enough cases in each category to permit statistical analysis (Warwick and Lininger, 1975).

Each answer would have to be analysed separately which complicates the analytical process, and is a time consuming process. At the other end of the scale, a highly structured Questionnaire can be applied where the answers are either in the simple form of 'Yes' or 'No' or multiple choice, so that the respondent has to choose which best fits his/her own reply to the question. The answers can be readily coded in a form suitable for computerization. However, valuable information is sometimes not obtained because a structured response only approximates the respondent's reply. Such a drawback is not experienced when factual information such as age and education is required.

However, attitudes and motivations are also required to substantiate the factual information. Attitudes and motivations vary with every individual, and are best obtained through using a less structured format. The Questionnaire took the form of having questions with structured answers, but at the same time allowing room for any answer to be recorded that did not fit into the prescribed categories. In this way the advantage of the open-ended Questionnaire could be utilized while maintaining a degree of structure suitable for statistical analysis. Question 19 is an example of this form of question (Table 6).

Q 18 32

If you do not work in the Keiskammahoek District would you like to?

N.A.		0
Yes		1
No		2

Q 19 33

If you answered Yes, Why?

N.A.		0
To be near family		1
I belong here		2
Other		3

If for any other reasons state what:

- - - - - - - - - - - - - - - - - - -

- - - - - - - - - - - - - - - - - - -

34

If you answered No, Why?

N.A.		0
Low Pay		1
Shortage of work		2
Other		3

If for any other reasons, state what:

- - - - - - - - - - - - - - - - - - -

- - - - - - - - - - - - - - - - - - -

TABLE 6. A SAMPLE OF OPEN-ENDED AND CLOSED RESPONSES CONSIDERED

Problems arose when deciding what categories were necessary for questions which required the respondent to give a reason for his/her answer. For example Questions 10, 12 and 14 (Appendix A) relating to shopping preferences required categories. The respondent asked why he does his shopping at the place stated. It was difficult formulating categories for the answers to these questions because little information on Black shopping preferences was available in the literature. It became necessary to conduct a pilot study to gain some insight into possible responses to these questions. The responses given to the questions in the pilot survey were structured into categories for use in the main Questionnaire. The form of the Questionnaire being only partly structured, allowed responses additional to these categories to be recorded during the main survey.

B. TRANSLATION OF THE QUESTIONNAIRE

A further problem encountered was that of cross-cultural research. The population was Xhosa speaking and few were able to speak English, added to which, the questions would be better understood in the respondents own language. The Questionnaire was therefore translated into Xhosa. The form the questions take is important in ensuring that the information wanted is given (Warwick and Lininger, 1975).

In order to check that the correct meaning was being conveyed in the translated version, the author co-ordinated closely with the translater. One particular example that has a bearing on the results analysed in Chapter Four is the translation of technical training. The translation of technical training in Xhosa is 'work you do with your hands.' The translation was accepted because it allowed for a wider range. The range of responses would be useful in assessing what work the respondent could find on the Scheme such as domestic and office training.

The questions were put to the respondent in Xhosa but the replies were recorded in English, necessitating a translation of the Xhosa answers into English. This second translation presented fewer problems because most of the answers were structured into categories and only those that did not fit into any category were to be recorded in full.

An interpreter had to be employed to conduct the Questionnaire. A Black Xhosa woman who had obtained a matriculation pass was enlisted to conduct the interviews with the Gxulu farmers and settler farmers under the supervision of the author. The interpreter was briefed during the pilot study which is dealt with in the following section. The Questionnaire was administered personally to each respondent and their answers recorded on the Questionnaire by the assistant. Problems inherent in the Questionnaire such as the ambiguities in the questions or inexplicit questions that the assistant would have difficulties with, came to light in the pilot study and could be dealt with before the main survey was carried out. An example of a problem with a question being inexplicit was Question 11 which asked the respondent where they bought their more expensive goods without defining what was meant by "more expensive." Upon investigating the price of goods sold in the local shops in Keiskammahoek, it was decided that "more expensive" should refer to goods costing R10 or more.

C. THE PILOT STUDY

The value of a pilot study is that problems in the study method, especially the Questionnaire, can be exposed before applying the design to the main sample. An analogy can be drawn with models. Models have the advantage of discovering mistakes on paper rather than in the real life situation where it would be far more costly.

It is less costly in terms of time and funds if the problems are discovered when the Questionnaire is applied to a small test group than if it is immediately applied to the larger sample required for the main study. It was necessary that a pilot study be conducted so that the Questionnaire might be tested before being administered in the main survey. The Questionnaire needed to be carefully examined through the use of a pilot study because of the number of problems that could arise out of the two sets of translations taking place and because an assistant would be administering the Questionnaire. Problems expected included those of ambiguities and confusing instructions as well as inadequate translations. The pilot study was also useful for finding out what responses could be expected in the area of shopping preferences, and in testing the other attitudunal open response questions (Appendix A).

A sample of 20 households was selected from both the Gxulu population and the settler farmers for the pilot study. The sample was selected according to the methods outlined in Section I. Those chosen in the main sample could have been chosen in the pilot sample as the two studies were not mutually exclusive. It was not necessary that the pilot sample remain separate as the results of the pilot study were not used in the main analysis. Furthermore, the respondent would be answering a revised Questionnaire and the response would not be spoilt by prior knowledge of the Questionnaire.

A number of changes were made on completion of the pilot study. The responses to Questions 10, 12 and 14 were categorised (Appendix A). A space was left on the Questionnaire to fill in responses that did not fit into any of the categories. The pilot study showed that certain points of clarification were needed.

The term 'more expensive' used in Questions 11 and 12 (Appendix A) was made more explicit by using "R10 or more' as a qualifying phrase.

Careful instruction of the research assistant was shown to be needed by the pilot study. The assistant was instructed to ask open-ended response questions such as "Why do you do your shopping here?" without mentioning the categorised responses on the Questionnaire sheet. In adopting this method the respondent was not influenced by ideas in the categorised responses and was free to express his/her own opinion. The assistant either marked the most appropriate category for the respondent's answer or if it did not apply to any of the categories, noted it in the space provided. A second consideration was the need for the assistant to make it clear that Question 24 referred to wage employment on the Scheme and Question 26 to full-time farming in the Scheme. The questions were restructured in order to make the difference between the two questions apparent. The assistant was also instructed to encourage the respondent to expand on answers such as 'I like it' and 'It is for the person to decide' as these answers do not provide the information needed as will be discussed in the following assessment of the Questionnaire.

D. ADMINISTERING THE QUESTIONNAIRE

It was decided that heads of households be interviewed as they would know all the details required to complete the Questionnaire. In addition the heads of households were likely to be the decision makers in circumstances such as moving to a new area. A further consideration was that by interviewing one particular person in the household time would be saved and costs kept to a minimum. If the head was not available because he/she was away working, the acting head was interviewed.

The responses were included in the heads of households' group analysed in Chapter Four. The Questionnaire used in the field was the same for the settler farmers and the Gxulu farmers except for the section dealing with attitude to migration which did not apply to the settler farmers. The section on migration did not apply to the settler farmers because the concern of the study is with examining employment opportunities for those in the Keiskammahoek area who are either unemployed or migrate to other areas for employment.

The Questionnaire was administered in a similar fashion for both the pilot study and the main study. The pilot study performed an important function in acting as a training ground for the research assistant. Training was important as she had had no previous experience in administering a Questionnaire. During the pilot study and for part of the main study the Questionnaire was administered by the assistant accompanied by the author so that problems arising could be dealt with as they arose. After each interview the assistant checked the completed Questionnaire, noting in particular that each question had a response in one form or another. By so doing, the problem of returning to the field to complete unfinished Questionnaires did not arise. Each Questionnaire was checked by the author so that faulty responses could be corrected, either by discussion with the assistant, or by returning to the field. The code number of each Questionnaire was recorded in a manner that enabled the respondent to be relocated if necessary.

E. ASSESSMENT OF THE QUESTIONNAIRE

The Questionnaire is assessed in order to present problems encountered with a view to aiding future research in the same area of study. The open-ended questions elicit responses that are closest to the respondents answer, but they present more problems than the closed response questions. For example, the answer 'I like it' can be given to a question 'Why do you want to work in Keiskammahoek?'

The answer does not provide insight into the reasons for wanting to work in Keiskammahoek and requires elaboration. When this response occurred, it was categorised as 'other.' The problem with this response of 'I like it' was picked up in the pilot study and as already explained, the assistant was instructed accordingly.

Although 'more expensive goods' in Question 11 was qualified by 'R10 or more' the distinction failed to indicate whether or not more expensive goods were available in Keiskammahoek. A confusion was apparent among respondents as some felt that 'more expensive goods' were not obtainable in Keiskammahoek while others felt the goods were obtainable. However, this confusion was used to good advantage in pointing to the different levels of buying power among respondents. Those who did not have a high income perceived more expensive goods to be anything above necessity goods, such as radios, while those with a higher income relate 'more expensive' to goods such as furniture.

The decision to combine open-ended and closed responses was advantageous in speeding up the time taken to interview a respondent. The majority of responses being already categorised greatly facilitated handling of the Questionnaire by the assistant.

Overall, the Questionnaire served to elicit the information required for the study. The information was in a form that could be coded and used in statistical analysis. In addition, there were written responses that gave further insight into the problem or area covered by the question. Although language barriers posed a problem, the difficulty was largely overcome through the use of an assistant, and by making careful translations of the Questionnaire. Cultural barriers could also have been a problem considering the cultural differences between Blacks and Whites. However, these barriers were largely overcome by having a Black Xhosa assistant. The assistant was a woman from King Williamstown and was always treated with respect.

The respondents were generally obliging in answering the Questionnaire. It remains to discuss the way in which the data collected from the Questionnaire were processed, as is the concern of the following section.

IV. DATA PROCESSING

The data from the Questionnaire survey was processed using the computer packaged programme, entitled Special Package for Social Sciences (S.P.S.S.) (Appendix B).

S.P.S.S. contains two sub-programmes for computing summary statistics for single variables. Firstly, the continous descriptive statistics programme (condescriptive) computes several summary measures of central tendency and dispersion, e.g. age. The second sub-programme (codebook) reports the frequency of occurrence of each unique value detected for a variable. Frequency counts were used for variables measured at a nominal or ordinal level, such as shopping preferences. Codebook and cross tabulations were used extensively as can be seen in Table 7, which summarises the main programmes used in analysing the data.

In order to examine the relationships between such variables as age and education, other sub-programmes were used. The main one used in the study was cross tabulations, where the joint frequency distribution of the cases as defined by the categories of two or more variables, is calculated. Spearman's correlation test was also run on age and education variables to test the correlation between the two variables. The Nonpar corr sub programmes was used for Spearman's test.

Using the above sub-programmes (condescriptive, codebook, cross-tab and non-par corr) the data were processed in order to facilitate anyalysis of the data and testing of the hypothesis.

The list of programmes run for the study is found in Table 7.

Sub-programmes	Variables Processed
Codebook	Age - all sample groups Education - all sample groups Shopping patterns - Q: 9-14 - all sample groups Attitude to migration - Q: 18-23 - Gxulu heads of house-holds Attitude to working/farming on the Scheme: Q: 24-27 - Gxulu heads of households
Crosstabulations	Age by sex - all sample groups Age by education - all sample groups Sex by technical training - Gxulu heads of house holds & house-hold members Sex by work type - Gxulu heads of households and household members Sex by agricultural training - Gxulu heads of house holds
Nonpar Corr	Age with education

TABLE 7: SUMMARY OF MAIN S.P.S.S. PROGRAMMES USED IN ANALYSING THE DATA.

SUMMARY

The aim of the study is to examine the extent to which the Keiskamma Irrigation Scheme creates employment opportunities for the local populace. There are three areas of investigation, namely: full-time farming on the Scheme; wage employment on the Scheme; and wage employment opportunities created in the village of Keiskammahoek as an indirect result of the Scheme. The data needed to investigate these three areas were collected by administering a Questionnaire to a sample group of 20 settler farmers and 110 heads of households from Lower Gxulu Village. The results from the data collected for the settler and Gxulu groups, along with the information collected from interviews with the shopkeepers in Keiskammaheok and the Manager of the Scheme were used to make an examination of the employment opportunities arising from the Scheme as detailed in the next Chapter.

CHAPTER FOUR

EXAMINATION OF THE EMPLOYMENT OPPORTUNITIES ARISING FROM THE KEISKAMMAHOEK IRRIGATION SCHEME

INTRODUCTION:

The previous chapter was concerned with the collection and processing of the information needed to conduct an examination of the role of the Keiskamma Irrigation Scheme in generating employment opportunities. The present chapter analyses the results of the survey in the light of the theoretical framework for underdevelopment outlined in Chapter Two. The chapter comprises four main sections. The first section details general background characteristics of the 'Settler' and 'Gxulu' sample groups. In the remaining three sections the Gxulu group is examined to see if they would qualify for joining the Scheme; benefit from the spread effects of the Scheme by finding work on the Scheme itself; or by employment being generated elsewhere by the Scheme for example in the village of Keiskammahoek.

I. SAMPLE GROUP PROFILES

In examining the full-time farming opportunites on the Keiskamma Irrigation Scheme, two sample groups were studied, namely, settler farmers and those from Gxulu village. The settler farmer groups are outlined, paying particular attention to how the requirements for settler farmers are met by this group. The composition of the Gxulu groups are then detailed in the second section, which also examines the incidence of migration and unemployment in this sample.

A. CHARACTERISTICS OF THE SETTLER FARMER

Data from the settler farmers were analysed to determine whether

they matched the criteria laid down for settler farmers by the Central Management of the Keiskamma Irrigation Scheme. Applicants for the position of a settler farmer are required to have passed Standard Four and be under 40 years of age. The education specification is important, considering the system of accounting that operates on the Scheme as explained in Chapter One.

A further criterion considered is agricultural experience or training received. Appendix C shows the application form to be completed by candidates. There could also be a preference for male settler farmers, and therefore sex is another cirterion considered. Having established the pertinent requirements, a detailed analysis of the ability of the Gxulu group to meet these can be made. The settler farmer sample comprised 20 heads of households and 29 persons in the economically active age group (15 - 65) (Table 8). The sample of heads of households comprised 38% of the total population as there were 52 settler farmers at the time of the study. The main interest of the study lies in the settler farmer heads of households rather than the household members, as the concern is with the qualifications that enabled them to become settler farmers. However, there are other aspects that need to be examined, such as the likelihood of the household members becoming settler farmers in future years. Therefore, the household members are also considered in the study. The distribution of the settler heads of households and the household members according to age and sex is illustrated in Table 8.

The heads of households were between 25 and 54 years of age. The older ones were at least 50 years when first appointed. This was ascertained by examining their ages when they were selected to join the Scheme. (Table 9). The age criterion was not rigorously enforced. Of the settler farmers, half were 40 years or over when they started on the Scheme. (Table 9).

CHARACTERISTICS	HEADS OF HOUSEHOLDS HOUSEHOLDS	HOUSEHOLD MEMBERS		
	MALES NO.	MALES NO.	FEMALES NO.	TOTAL NO.
1. No. in Sample	20	13	16	29
2. Age				
< 24		12	14	26
25 - 40	9	1	2	3
41 - 50	9	-	-	-
54 +	2	-	-	-
3. Education Std. passed				
< 4	-	2	3	5
4 - 5	10	4	5	9
6 - 7	7	5	3	8
8 - 9	3	2	3	5
10 +	-	-	2	2
4. Agric. Training				
None	14	n/a	n/a	n/a
School	3			
Agric.College	3			

TABLE 8. SETTLER FARMER CHARACTERISTICS: HEADS OF HOUSEHOLDS AND HOUSEHOLD MEMBERS (1979)

It would appear reasonable, then, to consider the village sample who fall into this category and not restrict the study to the upper age limit of 40 years stated by the Scheme Management. Therefore the upper age limit for the purposes of the study is 50 years. The Scheme Management stated that there was no definite lower age limit. The youngest settler head of household was 26 years. Taking this result into consideration it was decided that 25 would be an acceptable and convenient lower age limit. As the aim of the study is to examine employment opportunities available to the village respondents, it is important to consider these within the youngest and oldest acceptable age limits.

Time started on the Scheme \ approx. age when starting on the scheme	25-39 No.	40-44 No.	45-49 No.	50+ No.	TOTAL No.	%
Nov, 1976 - Oct. 1977	2	2	1	1	6	30
Nov, 1977 - Oct. 1978	8	1	1	1	11	55
Nov. 1978 - May, 1979	-	2	1	-	3	15
TOTAL:	10	5	3	2	20	100

TABLE 9. SETTLER HEADS OF HOUSEHOLDS: AGE WHEN STARTED AS SETTLER FARMERS. (1979)

A particular feature of the sex distribution of the population is the absence of females in the settler heads of household groups. (Table 8). This can be attributed to the process of selection whereby settler farmers are chosen. There is one widow on the Scheme, but she was not selected in the sample. The results from the study of a sample of settler farmers indicates that males are generally selected to be settler farmers. Therefore only the male Gxulu heads of households would be extracted from the Gxulu sample for further analysis.

As was expected all the settler farmers had passed Standard Four. (Table 8). The highest standard of educated passed was Standard Eight. These results suggest that those having passed only Standard Four are assured of acceptance on the Scheme should they meet the other criteria such as age and sex. The highest standard of education being Standard Eight is in keeping with the general level of education of farmers in South Africa (Marais, 1970).

The results (Table 8) showed that 14 out of the 20 settler heads of households have had no previous training in agriculture prior to coming onto the Scheme. Only three of the respondents had studied agriculture at a college, two of them at Fort Cox, a college in Ciskei. The remaining three respondents had done agriculture as a school subject. It appears that training in agriculture is not a critical requirement when applying to be a settler farmer.

The members of the settler farmer's household need to apply if they wish to farm on the Scheme themselves. They have an added advantage over other applicants in the experience gained by living on a settler farm. The results (Table 8) reveal that the majority of household members, 24 out of the 29, would be in a position to join the Scheme as they had already passed Standard Four. Accepting the lower age limit previously discussed, only three settler household members could apply to join the Scheme (1979) but clearly the position will change over time.

In summary, the findings have shown that the requirements needed for a settler farmer are that they be a male, have at least a Standard Four education and be between 25 and 50 years of age. The characteristics of the settler sample will now be compared with those of the Gxulu sample.

B. CHARACTERISTICS OF THE FARMERS AT GXULU

The composition of the Gxulu sample in terms of heads of households

and household members is first discussed. The unemployment and migrancy condition existing in the Gxulu village is then outlined. As the aim of the study is to examine the extent to which the Keiskamma Irrigation Scheme has alleviated these two problems, it is important to outline the existence of the problems in the village studied. The Gxulu village group was made up of 110 heads or acting heads of households and included 266 persons in the economically active age group (15 - 65). Information was sought on all qualifying members of the household, whether present or not. As with the settler farmers, two groupings are distinguished; the heads of households and the household members. The heads of households group refers to those who were available to answer the Questionnaire, and therefore includes acting heads of households, but does not include the heads of households who were absent.

By accepting acting heads of households as respondents, a cross section of younger and older people is obtained. The heads of households group represents the population in rural areas left at home who are not necessarily wage-earners. The focus is on these respondents as the study is concerned with the employment opportunities available for the people living in the village. The heads of households who were not available to answer the Questionnaire were included in the household members group. Of the 19 heads of households absent, most were working elsewhere or were ill. The study is also concerned with the possibility of the household members availing themselves of employment opportunities offered by the Scheme. However, this group is dealt with in less detail than the heads of households because they were not all available to answer the Questionnaire, and information about the household members was obtained from the heads of households or acting heads of households. Only the household members between 15 and 65 years were included as they comprise the economically active age group.

Gxulu Heads of Households		Male No.	Female No.	Total No.
(i)	Number	32 (29%)	78 (71%)	110 (100%)
(ii)	Age (Years)			
	< 24		2	2 (2%)
	25 - 40	3	34	37 (33%)
	41 - 50	15	9	24 (22%)
	50 +	14	33	47 (43%)
(iii)	Education: Std. passed			
	None	8	15	23 (21%)
	< 4	7	11	18 (16%)
	4 - 8	17	50	67 (61%)
	9 - 10	-	1	1 (1%)
	10 +	-	1	1 (1%)
(iv)	Presently employed in Keiskammahoek District	6	4	10 (9%)
	Outside Keiskammahoek District	6	-	6 (5%)
	Presently un-employed	20	74	94 (85%)

TABLE 10: THE GXULU PROFILE : HEADS OF HOUSEHOLDS

In presenting the characteristics of the Gxulu sample, age and sex characteristics are first discussed before considering the education characteristics. The respondents who could qualify for the Scheme are then grouped together for further analysis.

1. AGE AND SEX CHARACTERISTICS OF THE GXULU SAMPLE

The Gxulu heads of households were between 21 and over 65 years of age. A marked absence of males was noted in the 25 to 40 age group as shown in Table 10. The absence of male heads of households in the younger age group supports the findings discussed later, namely that there is a high incidence of migration among heads of households.

CHARACTERISTICS	Male No.	%	Female No.	%	Total No.	%n=266
(i) Number	131	(49)	135	(51)	266	(100)
(ii) Age (Years)						
15 - 24	69	(26)	56	(21)	125	(47)
25 - 40	47	(18)	56	(21)	103	(39)
41 - 50	12	(5)	20	(8)	32	(12)
50 +	3	(1)	3	(1)	6	(2)
TOTAL:	131	(50)	135	(51)	266	(100)
(iii) Education - Std. passed						
None	2	(1)	2	(1)	4	(2)
< 4	35	(13)	22	(8)	57	(21)
4 - 8	78	(13)	98	(37)	176	(66)
9 - 10	13	(5)	11	(4)	24	(9)
10 +	3	(1)	2	(11)	5	(2)
TOTAL:	131	(49)	135	(51)	266	(100)
(iv) Employment	(%n=141		(%n=141)		(%n=141)	
Presently employed in Keiskammahoek District	4	(3)	19	(13)	23	(16)
Outside Keiskammahoek District	81	(57)	37	(26)	118	(84)
TOTAL:					141	(100)
Unemployed	(%n=266)		(%n=266)		(%n=266)	
	46	17	79	30	125	47

TABLE 11: THE GXULU HOUSEHOLD MEMBERS' PROFILE

However, there are 15 male heads of households in the 41 to 50 age group and these added to the three younger male heads of households constitute the group that would meet the age and sex requirements for settler farmers. They constitute only 17% of the total sample and will be examined further in terms of education to assess whether they meet the three major requirements needed to become a settler farmer. The male village household members appear to be fairly well suited to becoming settler farmers in terms of age as there were 59 (45%) of the village male household members between 25 and 50 years. (Table 11). Considering the fact that 84% of the household members migrate to other areas for work (Table 11), the possibility of working on the Scheme could reduce the number who migrate. This consideration is especially important in terms of bringing Ciskeians back to the Ciskei which would encourage the development of service and other industries to meet the demands of the labour force. This aspect is examined in the third section, which considers the Scheme as a growth industry.

2. EDUCATION CHARACTERISTICS

The critical education level is Standard Four as outlined previously. Greater attention is given to examining the number of Gxulu village members who would qualify for the Scheme in terms of the education criterion as this criterion carries the most weight in comparison with age and sex. Therefore, a brief overview of the education levels of the Gxulu groups is given before examing the Gxulu males between 25 and 50 years.

Table 10 shows that 63% of the heads of Gxulu households have passed Standard Four and 77% of the Gxulu household members have done likewise (Table 11). The Gxulu heads of households groups have a comparatively high percentage (21%) who have no education. The household members only have 2% with no education. Those with a matriculation or post-school education are found mostly in the Gxulu household member group as 2% of the members have post matriculation qualifications (Table 11).

The fact that except for two female heads of households, the upper education limit for heads of households is Standard Eight, corresponds to the education profile of the settlers illustrated in Table 9. Standard Five was the mode of education for the 25 - 50 age group, of the male and female village heads of households (Fig.12) and the number of respondents in the 25 - 50 age group, who had passed Standard Four was 50 (82%) of the group as shown in Table 12. These results suggest that a large percentage of the village heads of households between 25 and 50 years have the education requirements to be settler farmers. The results show that 74% of the village household members between 25 and 50 years had Standard Four and over. The high percentage of the village household members between 25 and 50 years having Standard Four education indicates their ability to meet the education qualifications needed for the Scheme.

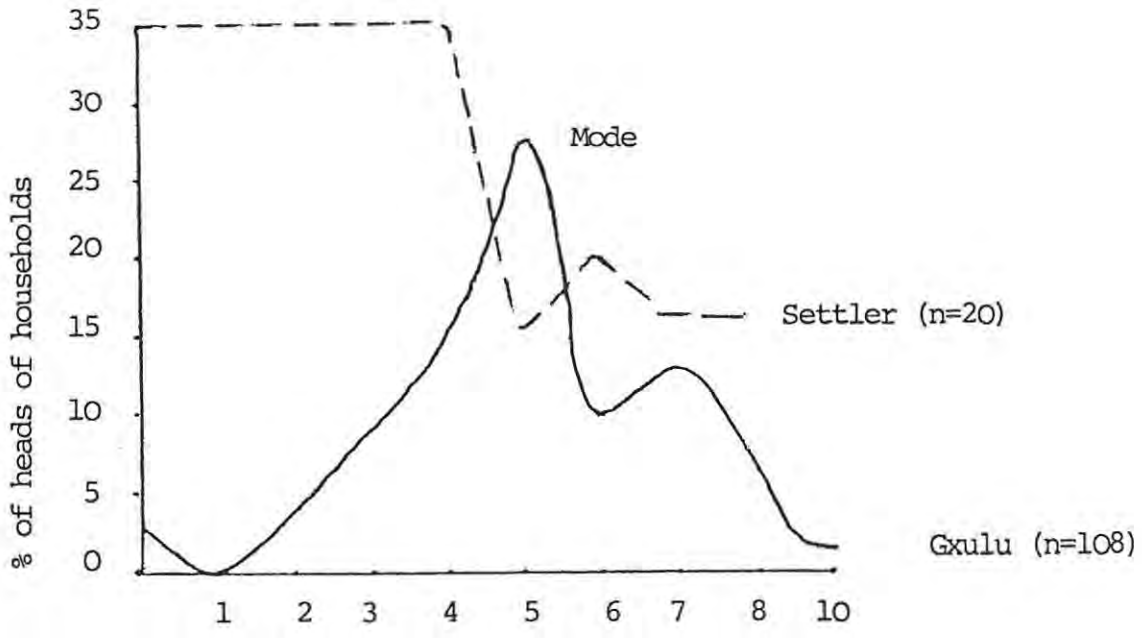


FIGURE 12: STANDARD OF EDUCATION PASSED BY ALL SETTLER AND VILLAGE HEADS OF HOUSEHOLD (25-50 YEARS)

Standard of Education passed	Heads of Households 25 - 50		
	No.	%	Cumulative %
Post School	1	2	2
10	1	2	4
9	0	0	4
8	6	10	14
7	8	13	27
6	7	12	39
5	17	27	66
4	10	16	82
3	7	12	94
2	2	3	97
1	0	0	97
Sub A	0	0	97
Sub B	0	0	97
0	2	3	100
TOTAL:	61	100	100

TABLE 12. CUMULATIVE PERCENTAGE EDUCATION OF VILLAGE HEADS OF HOUSEHOLDS (25 - 50 YEARS)

Of particular interest is the number of male heads of households and household members between 25 and 50 years who have passed Standard Four. Of the 18 male heads of households between 25 and 50 years 14 have passed Standard Four and would therefore be eligible as settler farmers (Table 13). Likewise

36 of the 59 male household members between 25 and 50 years have passed Standard Four. Therefore a high percentage, 78% and 61% respectively of the males between 25-50 years in the Gxulu groups could join the Scheme as settler farmers (Table 13). This result will be discussed with particular reference to the hypothesis in Section II.

Males 25-50 years	0	Sub A	Sub B	1	2	3	Sub Total	4	5	6	7	8	9	10	Post School	Sub Total	Total
GXULU HEADS (MALE)																	
n	1	-	-	-	1	2	45	6	7	1	-	-	-	-	-	14	18
%	5	-	-	-	5	11	22	33	39	66	-	-	-	-	-	78	100
GXULU HOUSEHOLD MEMBERS (MALE)																	
n	1	3	1	2	5	11	23	8	16	3	2	2	0	4	1	36	59
%	2	5	2	3	8	19	39	14	27	5	3	3	0	7	2	61	100

TABLE 13. EDUCATION LEVEL OF ALL GXULU MALES BETWEEN 20 - 50 YEARS.

3. AGRICULTURAL TRAINING

Through the use of a sieve technique, a group of male heads of household between the ages of 25 and 50 who had passed Standard Four were analysed. The group comprised of 14 respondents, and of these 13 had no agriculture training, which corresponds to the fairly high number of settler heads of households (15 out of 20) who had received no agricultural training. Considering that training in agriculture is not an important cirterion in being accepted as a settler farmer, the high percentage not having training in agriculture would not affect the chances of Gxulu males being accepted on the Scheme as settler farmers.

The final characteristics to be summarised before the hypothesis, that the Scheme creates employment opportunities for the local populace, is tested in the next section are those of the incidences of migration and the lack of wage employment for Gxulu farmers.

4. EMPLOYMENT CHARACTERISTICS

A central focus of the study is the extent to which the Keiskamma Irrigation Scheme may reduce unemployment in the local area. Unemployment refers to the inability of a person to have access to a wage earning job. The unavailability of local employment results in migration to other areas for employment, and this aspect is also considered. A high percentage (85%) of unemployment was evident among the Gxulu heads of households, as 94 of the 110 were unemployed (Table 10). Of the 94, 74 were females and 20 were males. Unemployment among the heads of households is not surprising, especially in view of the few work opportunities nearby. The relatively large number of village female heads of households unemployed could be accounted for by the fact that 33 out of the 78 females were over 50 years old. The unemployment ratio for males is far lower than that for females, as out of every 100 males, 63 are unemployed. Considering that the heads of household groups comprise a cross section of the population, it appears that there is a high rate of unemployment in the Gxulu village. The heads of households who were away at the time of the survey are included in the household member group. The rate of unemployment amongst the members of the household is less than that for the heads of households. An analysis of the household members between 15 and 65 years revealed that 47% were unemployed, as 125 out of the total 266 were unemployed. Almost half (42%) of the village household members that are unemployed live in Gxulu as shown in Table 14 and would add to the dependency burden. Along with unemployment, migration could be alleviated should sufficient employment opportunities be generated by the Scheme.

GXULU HOUSEHOLD MEMBERS BETWEEN 15 - 65 YEARS	DOMICILED AT GXULU	DOMICILED AWAY FROM GXULU	TOTAL
(A)	No.	No.	No.
In wage employment			
Males	72	14	86
Females	45	12	57
TOTAL	117	26	143
Total employed as a % of group(n=266)	44	10	54
(B)			
Not in wage employment			
Males	45	-	45
Females	67	11	78
TOTAL:	112	11	123
Total unemployed as a % of group(n=266)	42	4	46

TABLE 14. DOMICILE AND EMPLOYMENT POSITION OF MALE AND FEMALE GXULU HOUSEHOLD MEMBERS.

The information on migration is obtained from the responses given by the heads of households about the household members. Table 14 shows that 37 Gxulu village household members were domiciled away from the village, but were considered a part of the village. Although the 26 household members who were employed constitute 10% of the total sample, there were a further 92 living at Gxulu who were employed outside the Keiskamma area (Table 11) pointing to a high incidence of migration. In total 84% of the economical active household members migrated to other areas for work (Table 11).

The first part of the section outlined the requirements needed for a settler farmers. The farmer must be a male between 21 and 50 years, with a minimum educational standard of Standard Four. There were 14 out of the 110 heads of households group who met these requirements, and 36 of the 266 household members. The second part of the section described the Gxulu sample in general with respect to these requirements and detailed the incidence of unemployed and migration in the Gxulu village. The section following examines in detail the ability of the Gxulu sample to meet the requirements for settler farmers.

II. FULL-TIME FARMING OPPORTUNITIES ON THE SCHEME

The examination of the general characteristics of the Gxulu sample established a select group which met the age, sex and education requirments needed to be a settler farmer, namely that the potential applicant must be a male between the ages of 25 and 50 years, and must have passed Standard Four. This qualifying group of 14 male heads of households and 36 male household members was analysed in order to test the hypothesis that the Scheme could create avenues of employment for the local populace in the form of full-time farming opportunities.

The number of male and female village household heads eligible in terms of age was 61 (55%) and 135 (51%) of the members of the village households (Table 15). However, of the heads of households between 25 and 50 years, 18 were males and of the household members, 59 were males. The hypothesis holds for the males between 25 and 50 years as 78% of the 18 male heads of households and 61% of the 36 male household members have passed Standard Four and would be eligible for the Scheme. The hypothesis does not appear to hold for the heads of households as a whole as 83% would not be eligible for the Scheme.

The primary reason for heads of households not being able to take advantage of the full-time settler farming opportunities is the fact that 78 were females (71% of the sample). A further 14 male heads of households were over 50 years of age. Likewise 135 of the household members are females (51%) and could not qualify for the Scheme.

GXULU SAMPLE	STANDARD OF EDUCATION PASSED: NO. WITH ≤ 4	STD.4+	TOTAL No. (%n=110
Heads of Households 25-50 years			
Males	4	14	18 (17)
Females	7	36	43 (39)
Sub-Total:			61 (56)
Heads of Households < 25 & 50 years			
Males	11	3	14 (13)
Females	19	16	35 (31)
Sub-Total :			49 (44)
TOTAL:	41	69	110 100
Household members 25-50 years			(n=266)
Males	23	36	59 (23)
Females	14	62	76 (28)
Sub-Total:			135 (51)
Household members < 25 & 50 years			
Males	14	58	72 (27)
Females	10	49	59 (22)
Sub-Total:			131 (49)
TOTAL:	61	205	266 100

TABLE 15. SUMMARY OF GXULU SAMPLE MEETING SEX, AGE AND EDUCATION CRITERIA.

In summary, the hypothesis that the Scheme creates full-time farming employment opportunities for the local populace is seen to hold for Gxulu males between 25 and 50 years as they meet the education requirements. The females and older Gxulu population are not able to find employment as settler farmers on the Scheme. However, there could be wage employment opportunities for them, and this is analysed in Section III following a discussion on the results pertaining to full-time employment on the Scheme.

A. DISCUSSION OF RESULTS

Several points for discussion arise out of the general results of the study as regards full-time farming on the Scheme. These issues fall into two main sections. The first involves discussing full-time farming on the Scheme as an employment opportunity in relation to the level of agricultural output expected from the Scheme. The second issue for discussion concerns the implications and ramifications of the younger Gxulu farmers being qualified to come onto the Scheme as settler farmers in terms of the number of opportunities available.

1. THE GXULU GROUP AS FULL-TIME FARMERS

The examination of the full-time farming opportunities available on the Scheme in the context of the level of agricultural production expected relates to the issues raised in Chapter Two. The issues raised in the section on economic growth and employment revolve around Galenson's (1971, 1) idea that ".... satisfactory growth of the national product is not enough to provide a guarantee against unemployment." One of the more striking results of the study is that most Gxulu male farmers, both heads of households and household members between the ages of 25 and 50 (78% and 61% respectively), meet the education requirements for a settler farmer. It appears that the Selection Board for the Scheme has not preferred a higher standard of education than the qualifying one of Standard Four, and that agricultural training is not a pre-requisite for a settler farmer. In terms of the educational standard required of the settler farmers, the standard is low enough to be met by the local rural populace. The survey brought out a certain resistance among locals to apply to join the Scheme. Many of the respondents from the heads of households group who expressed an unwillingness to join the Scheme did so because the Scheme does not allow settler farmers to bring their own cattle stock onto the plots. This is a serious problem in view of the importance placed on cattle by Blacks.

However, considering the small size of the plots (4 hectares), the use of intensive as opposed to extensive animal practices, and the importance placed on quality, it is necessary that a check be kept on outside stock being brought in. In addition, in view of the Scheme's aim to achieve high production from high quality dairy herds, it is a practical consideration not to have outside stock on the plots. The plots would be too small to carry extra stock and the problems of disease being carried and spread are too great a risk. A commonage could be considered except that the owner might find it difficult to understand why he cannot graze his stock on the prime grazing of Kikuyi and rye grass grown under irrigation on the plots. There is an avenue for future research, considering the sociological implication involved in the introduction of a capital intensive resettlement scheme in an area where subsistence agriculture previously dominated.

The populace over 50 years of age are regarded as unsuitable as settler farmers and alternative employment needs to be made available for them. In view of the fact that nearly half (43%) of the heads of households group (males and females) are over 50 years of age, the problem of finding employment opportunities for this group is a serious one should they want it. It is necessary that even this group be considered when studying unemployment as the low prosperity experienced in Black rural areas is aggravated by a high dependency burden. In addition, Maasdorp (1977) warns against transferring the western concept of a working population being between the ages of 15 and 65, pointing out the early age at which children take up important work tasks such as herding, and that if a man is fit, he can continue working after he is 65. The sociological and cultural restrictions imposed by the nature of the Scheme, namely that females and males over 50 are excluded, and the cattle issue, point to the necessity to

develop dryland agriculture. Such developments will benefit those on the land who are already in the social and economic framework of the Gxulu group.

2. COMPETITION FOR FULL-TIME EMPLOYMENT ON THE SCHEME

The second issue relates to the number of settler farmer opportunities available in relation to the number of people in need of employment or who could aim for the position of a settler farmer. Out of 110 village heads of household, male and female, 14 males between 25 and 50 years (13% of all heads of household), would be able to apply as settler farmers, and 57 males from the household members group are eligible (22%). The total number of households in Gxulu were 445 and therefore 13% of the total represents 58 people. Similarly, 22% of the approximate number of household members (1 076) represents 237 people. The Scheme only aims to make provision for 175 families and it appears that these places could be filled by males between 25 and 50 years from the Gxulu village alone. The approximate total number of males between 25 and 50 years eligible from Gxulu village is 295. When the 16 other locations (approximately 3000 households), and all the household members are taken into consideration, the number of males eligible in all probability will approximate 420 030, giving an idea of the number of employment opportunities required in the immediate locality of the Irrigation Scheme.

A further complicating factor is that the members of settler farmers' households have a distinct advantage over other applicants

in terms of the experience they will have already gained. Nevertheless the settler farmer opportunities are open to all Ciskei citizens and the Government hopes to encourage Ciskeians to return to Ciskei by making such employment opportunities as the settler farmer has on the Keiskamma Irrigation Scheme, available to the Ciskei citizens. An analysis of the previous home towns of present settler farmers reveals that only 3 (15%) come from Keiskammahoek and 6 (30) from outside the Ciskei. (Table 16). There is no stated preference given to local inhabitants applying to be settler farmers.

SOURCE AREA	No.	%
Keiskammahoek	3	15
The Ciskei, outside Keiskammahoek	11	55
Outside the Ciskei	6	30
Total	20	100

TABLE 16: SOURCE AREA FOR SETTLER HEADS OF HOUSEHOLDS

The discussion has revealed the eligibility of a large number of men from the local villages (approximately 4720) to apply to join the Scheme, and yet 85% of the settlers come from outside the Keiskammahoek area (Table 16). The results indicate that the local populace are not taking advantage of the full-time farming opportunities on the Scheme even though some are eligible (13% of the heads of households). Again, there is an avenue for further research into the sociological implications of having outsiders on the Scheme and the reasons

for the locals not joining. Having noted the small number of settlers from Keiskammahoek area, there is a need to examine the wage employment opportunities that the Scheme provides for the local populace.

III. WAGE EMPLOYMENT ON THE KEISKAMMA IRRIGATION SCHEME

Introduction:

In examining wage employment opportunities on the Keiskamma Irrigation Scheme, the jobs available will first be enumerated and discussed. The ability of the Gxulu group to fill these jobs will then be considered. The hypothesis stating that the Scheme provides wage employment opportunities for the local populace is then tested and assessed.

A. Available Employment

A survey of the office records about jobs available on the Scheme is summarized in Table 17. For the purposes of this study, semi-skilled and skilled labour are dealt with together. The terms refer to those who have had training before applying for their jobs, e.g. tractor drivers, or to those who have matriculated and have post school training to qualify them for their jobs, such as agricultural and section officers. The total number of openings in wage employment available on the Scheme was 413, of which 71 were skilled or semi-skilled jobs and 342 were unskilled jobs. The remaining four jobs were managerial positions held by Whites at the time of study (Table 17).

EMPLOYMENT CATEGORY	NUMBER		TOTAL
	Males	Females	
Skilled, semi-skilled:			
Management	4		
Officers	30		
Supervisors	5		
Office: Accountants	2		
Clerks	-	5	
Tractor drivers	10		
Mechanics	1		
Builders	14		
Sub-Total:	66	5	71
Unskilled:			
Parlour Maids	-	16	
Recorders	-	4	
Factory Supervisors	-	1	
Labourers	321	-	
Sub-Total:	321	21	342
TOTAL:	387	26	413

TABLE 17: EMPLOYMENT OPPORTUNITIES ON KEISKAMMA IRRIGATION SCHEME (1979)

B. ASSESSMENT OF GXULU GROUP IN RELATION TO EMPLOYMENT OPPORTUNITIES

Information was obtained from the Gxulu heads of households and the household members as to what technical experience they had. It is emphasised that technical experience in the study refers to 'working with one's hands' after some training, not necessarily from an

institution, and is therefore used in a very broad sense of the word. This usage of the term allows for a deeper insight into the skills available in the Gxulu group than if the term only referred to those trained in Insitutions, and allowed a wide range of abilities to be recorded. These abilities could then be related to the employment requiring skilled or semi-skilled experience. The willingness of the Gxulu heads of households to work on the Scheme was also considered. The assessment of the Gxulu groups was divided into three sections; skilled and semi-skilled employment on the Scheme, unskilled employment, and willingness to work on the Scheme, which will overlap with the first two.

I. SKILLED AND SEMI-SKILLED EMPLOYMENT ON THE SCHEME

The respondents have been listed under categories of technical work relevant to the Scheme in Table 18, namely mechanics, builders, office workers and farmers. Those with training unrelated to jobs available on the Scheme are classed in the category 'other'. The heads of households are first reviewed followed by an assessment of the household members. The section is concluded with a summary review of the employment opportunities available on the Scheme.

Table 18 shows that 24 males had no technical experience, as only 8 males could qualify for semi-skilled or skilled jobs on the Scheme. None of the Gxulu female heads of households had had technical experience related to the Scheme. Technical experience noted by the females was that of dressmaking and other home economics and therefore they were marked in the category 'other.' The experience held by the male Gxulu heads of households was in the area of mechanics and building. Of the respondents, only one had training as a mechanic and the remaining six as builders. The training as a mechanic would enable him to qualify for a job on the Scheme as the

Scheme employs mechanics to work on the machinery it uses. An area of technical experience, particularly useful to the Scheme, in the initial stages of its development, is that of a builder. The Scheme was started in 1976, and was in a stage of expansion at the time of study. There were a greater number of jobs available for builders during this period. Subsequent to the completion of the initial outlay of the Scheme, jobs for builders would still be available as the settlers are able to add to their houses and build store rooms.

Consideration was also given to respondents who had driving licences, as tractors, lorries and other vehicles are used on the Scheme. Of the 110 heads of households, only 3 (8%) had driving licences. All three had heavy duty licences, which would be of particular value on the Scheme.

The results for the Gxulu male household members revealed that 97 of 131 (74%) had no technical experience, a similar percentage of that of the male heads of households. A further 22 (17%) had training in fields unrelated to the Scheme (Table 18). Of the remaining male household members 8 were trained as mechanics, 3 as builders and one household member had had office training. The analysis of employment available on the Scheme for females revealed that 'clerk' was the only category which required training. No female household members had training in this area. The only training the females had received was working as domestics or training in home economics, and there were 61 (45%) who had received this training. The remaining 74 (55%) had no training.

Several members of the Gxulu household members, 20 males and 16 females indicated that they had received technical training at school but did not specify what type. As the percentage is small and as further training would be needed to qualify for skilled jobs and semi-skilled jobs on the Scheme, the type of training is not analysed in detail.

In summary, the results on technical experience received by the Gxulu groups reveal that eight of the 32 Gxulu male heads of households (25%) could apply for jobs on the Scheme that require technical experience. Of the household members, 12 males had technical training in related fields. These results indicate that only a small percentage (5%) of the total Gxulu sample (376) could apply for technical jobs on the Scheme, therefore unskilled employment opportunities are an important consideration. Information on the nature of the respondents present employment was also obtained. Due to the broad definition of technical training which allowed for responses not necessarily confined to training at an Institution, the data on employment categories added little to the results discussed above. Should the respondents present employment provide him with technical expertise related to the Scheme, it should have been picked up in the response to the question on technical experience. In fact there were very few occupied in employment related to the Scheme. Apart from two drivers, there were no Gxulu heads of households occupied in employment related to the Scheme. Of the household members, one was occupied in farming and seven in office work, the remaining 258 were either unemployed or in employment un-related to the Scheme.

SAMPLE GROUP	EMPLOYMENT RELEVANT TO THE SCHEME					
Gxulu Heads of Households	Farming	Mechanical	Building	Office	Other	Total
Males	2	1	5	-	-	8
Gxulu Household Members						
Males	-	8	3	1	22	34
Females	-	-	-	-	61	61

TABLE 18. GXULU MEMBERS WITH TECHNICAL TRAINING RELEVANT TO EMPLOYMENT OPPORTUNITIES ON THE SCHEME

3. UNSKILLED EMPLOYMENT ON THE SCHEME

There are 321 jobs for labourers on the Scheme. Most of these can only be filled by males. The dairies are however cleaned by parlour maids and have women supervisors and recorders. The unskilled jobs for females totals 21 (Table 17). Therefore, of the 78 female heads of households together with the 135 female household members only 10% could find employment.

The 321 labourers' jobs would supply work for the 24 male heads of households and 119 male household members in the Gxulu sample who were unskilled. As the 143 males are 38% of the Gxulu sample it is presumed that 38% (578) of the total population in Gxulu, approximately 1 521, excluding household members over 65 and under 15 years, are unskilled labourers. Therefore, the Scheme would provide employment for 56% of the population in Gxulu. However, when the other 34 villages in the local area are taken into consideration, the percentage of unskilled males finding employment is considerably reduced.

As stated in the previous section, 20 Gxulu males had technical experience. Therefore those with experience unrelated to the Scheme added to the unskilled totals 356 for both Gxulu groups, (95% of the 376 in the total sample). This result points to the lack of skilled workers among the local populace and the need for unskilled employment opportunities.

4. WILLINGNESS OF GXULU VILLAGERS TO WORK ON THE SCHEME

An assessment was also made of the willingness of the Gxulu heads of households to work on the Scheme. There are no results for the household members, as the question is related to personal opinion, and it was decided that the heads of households who completed the entire Questionnaire could not answer for the household members. The village heads of households were asked whether they would like to work on the Scheme in preference to working elsewhere.

The results were tabulated and are summarised in Table 19. These results revealed that 64 out of 110 (57%) village heads of households are willing to work on the Scheme. It is important to note that more than half the respondents showed an interest in the Scheme. Table 19 displays under the head 'Positive Reasons' the reasons given by the village heads of households for wanting to work on the Scheme. The most popular reason was wanting to be near the family, a reason given by 47 heads of households. This reason links up with the need expressed for alternative employment in home areas so that the incidence of migration might be reduced (Wilson, 1972). A further 14 were interested in the high pay offered by the Scheme. The pay being high or low is a matter of perception as one respondent gave low pay as a reason for not wanting to work on the Scheme. The remaining three respondents who were willing to work on the Scheme showed an interest in helping increase the prospects of either the Keiskammahoek area or the Ciskei itself. The respondents did not elaborate on what was meant by 'increasing prospects.'

There were 46 heads of households who were unwilling to go and work on the Scheme (Table 19). Most of the respondents, 37, gave the reason as being a fear that working with water was unhealthy. This fear could be overcome by demonstrating the usefulness of water and the means available for using it so that water does not carry diseases. Table 19 shows that four who did not want to farm on the Scheme gave their reason as being the fact that they could not take their own stock. This objection could also be overcome through educating the villagers in the necessity of having prime stock. The remaining four respondents gave other reasons, such as political reasons. There appears to be no outstanding reason against working on the Scheme apart from water being unhealthy and that fear could be remedied. More than half the respondents (57%) were willing to work on the Scheme.

REASONS FOR DECISION			
WILLING TO WORK ON THE SCHEME	NO.	UNWILLING TO WORK ON THE SCHEME	NO.
Proximity to family	47	Unhealthy	37
High Pay	14	Cannot take own stock	4
Help Ciskei	3	Low Pay	1
		Other	4
TOTAL:	64	TOTAL:	46
% willing (n = 110)	57	% unwilling (n = 110)	43

TABLE 19. GXULU HEADS OF HOUSEHOLDS (MALE AND FEMALE) ATTITUDE TO WORKING ON THE SCHEME

The results in summary have shown that there is a lack of skilled workers among the local populace as 95% of the Gxulu sample were unskilled in jobs relating to the Scheme. Significantly 83% of the jobs on the Scheme are for unskilled workers. There was also a fairly large percentage (57%) of the Gxulu respondents who were in favour of working on the Scheme. Having outlined the jobs available on the Scheme and the possibility of the Gxulu villagers taking them, the hypothesis can be tested and assessed.

C. TESTING THE HYPOTHESIS

The main hypothesis stated that the employment opportunities created by the Scheme will open up new avenues of employment for the local populace. The present section is concerned with testing whether the Scheme provides wage employment for the local populace. There are skilled or semi-skilled employment openings on the Scheme (Table 17) such as those for mechanics, office workers and builders, which allow for those trained in these areas to find work on the Scheme.

In terms of the types of wage employment opportunities, the Scheme appears to make available a suitable range to the diversely trained village population. However, the results showed that 95% of the Gxulu sample groups together did not have any technical expertise relating to the Scheme. Therefore there are only 20 (5%) who would be qualified to take on jobs of a skilled nature (Table 18). The largest number of work opportunities on the Scheme are those requiring unskilled labour (342) and the results showed that 83% of the jobs on the Scheme fall into this category. There was a corresponding large percentage of the total Gxulu respondents (95%) who fell into the category of unskilled workers, as 318 out of 376 respondents from both groups were labourers or unskilled in jobs relating to the Scheme (Table 18). The hypothesis appears to hold for the unskilled local populace with respect to the type of work available as 83% of the jobs on the Scheme are for unskilled workers and there were 95% of the Gxulu respondents who fell into this category.

The hypothesis being tested in this section is that wage employment on the Scheme offers possible avenues of employment to the unemployed among the local populace. Of the total Gxulu sample 58% were unemployed. Taking the sample as being representative of the Gxulu population as a whole (1 526 approximately) there are 885 unemployed. Supposing the people could be employed on the Scheme, the Scheme could provide few direct employment opportunities in relation to the numbers needed as it offered a total of 413 jobs at the time of the study (1979). Considering that Gxulu is one of the 35 other villages in the Keiskammahoek area, the extent to which the Scheme is able to provide employment for the local populace that are unemployed is considerably minimised.

In testing the hypothesis, attention was given to three considerations namely, the variety of jobs available on the Scheme, the number of jobs available in relation to those unemployed, and finally the number of

jobs available in relation to those willing to work on the Scheme. As regards the first consideration, there is a limited number of skilled jobs available which corresponds to the skilled workers being a minority group in the Gxulu sample (5%). The largest proportion of the jobs available are unskilled corresponding to the fact that the local populace is largely unskilled (95%). The second consideration was the number of jobs on the Scheme in relation to the need for employment. The results suggest that unemployment could only markedly be reduced by 40% among the populace of one village.

The third consideration was the number of jobs available on the Scheme in relation to those willing to work on the Scheme. There was a positive response to working on the Scheme shown by 57% of the heads of households. The Scheme therefore is seen as a desirable place to work and the 413 employment opportunities on the Scheme would be insufficient to meet the number of people from all 35 villages who would like to find employment on the Scheme.

D. DISCUSSION OF RESULTS

The study focuses on the problem of unemployment in a developing country, the Ciskei. The extent to which a Scheme in its initial stages of development helps reduce unemployment has been studied as it is important that innovations be tested and assessed. Of the total Gxulu sample, heads and members together, 58% were unemployed. The results showed that the employment opportunities provided by the Scheme, although a move in the right direction, are insufficient to produce a marked reduction in unemployment of the local populace. The failure of sufficient employment opportunities being created to meet the local demand is greater in the light of an increasing population and in view of the need to reduce migration. The number of respondents willing to work on the Scheme, because it would mean they could remain with their families, indicates a preference for employment that does not involve migrating away from home.

This indication stresses the need to provide alternative employment for migrant labourers. The criticism levelled at capital intensive schemes by Silberfein (1976), among others, would seem to apply to the Keiskamma Irrigation Scheme, as it employs sophisticated labour saving machinery such as milking machines. However, two items must be noted in defence of the Scheme. Firstly, the standard of milk production required to meet competition at the marketing level and secondly the increased hygiene assured through the use of sophisticated machinery. The first consideration in particular relates to the wider issues involved in assessing the use of labour saving technology at the expense of providing employment for the unemployed. In order to employ labour intensive devices that could also mean lowering the standard of milk production, the Scheme would have to be assured of a ready market for the lower quality product. The wider economic system, therefore, would also need to be geared towards accommodating a possible lowering of standards for the sake of increased employment openings. There is scope for further study in examining various alternatives to the capital intensive methods being used in a peripheral capatalistic system. The Scheme needs to be examined in relation to the whole structure of the Ciskei and South African economy in order to understand the inter-relationships and interdependencies involved in the complex economic structure. An example of such interrelationships is the fact that the demand (as it should be) for milk of a high standard encourages the Scheme to use milking machines which enables efficient production of a high standard. The second consideration in defence of the view that the Scheme is capital intensive was that the use of the milking machinery ensures increased hygiene. The standard of hygiene of the milk contributes towards better health conditions for those who buy it. The improvement of health is an important aim of development so the Scheme would appear to be contributing towards the goals of development in this instance. The question arises as to which is more important, to improve health conditions or reduce unemployment. To debate this issue lies outside the scope of the study. It is sufficient to say that development goals can be conflicting as would appear to the the case here.

The largest proportion of jobs provided by the Scheme are those for unskilled workers, which corresponds with the large proportion (95%) of unskilled workers among the local populace. The small minority of skilled workers (Table 18) would suggest that the population in the rural areas is not necessarily acquiring skills and training while working in South Africa. This result is contrary to Page's (1976) statement that the Ciskei was at a higher stage of Rostow's stages of development on the assumption that skills were acquired during the migrants working period in South Africa. Further research is needed to support the findings of the study and test the validity of Page's assumption. The lack of skilled workers in the local populace would appear to support the overall picture given in the first chapter, of the Ciskei as an underdeveloped region.

The hypothesis that the Scheme creates employment for the local populace, firstly through offering full-time farming opportunites (Section II) and secondly by offering wage employment (Section III) has not been fully accepted. Full-time farming opportunities are available to 50 of the 77 Gxulu males in both groups between 25 and 50 years of age (65%) and therefore the hypothesis can be accepted for this group only. Females and the populace over 50 years of age (299) are not able to be settler farmers and in this case, the hypothesis does not apply to 80% of the Gxulu sample. The wage employment opportunities that the Scheme offers are not sufficient in number to provide jobs for the unemployed local populace from the 35 villages, and therefore the hypothesis does not hold. However, it is important to note that the type of wage employment offered is suitable as 342 of the 413 jobs (83%) are for unskilled workers and 95% of the total Gxulu sample (376) were either unskilled or had training in jobs unrelated to the employment offered on the Scheme. A third area of employment that could be generated indirectly by the Scheme is job opportunities made available in the village of Keiskammahoek through the Scheme giving impetus to the development of commerce.

In part the view of the Scheme as a growth centre, generating employment elsewhere, is a recognition of the relationships that exist between various sectors of the economy. The study now undertakes a preliminary investigation of the indirect employment opportunities generated by the Scheme. The findings are discussed in the third section which examines the effect the increased buying power generated by the Scheme had on the village of Keiskammahoek.

IV. THE SCHEME AS A GROWTH CENTRE CREATING INDIRECT OPPORTUNITIES IN THE VILLAGE OF KEISKAMMAHOEK

The possibility of employment opportunities opening up in the village of Keiskammahoek as a result of the increased buying power generated by the Scheme was examined by interviewing shopkeepers and customers. The Gxulu and Settler heads of households comprised the customer sample and questions pertaining to shopping in Keiskammahoek were included in the Questionnaire (Appendix A). The Scheme as a growth centre in the light of the interviews is discussed in two sections.
The first section deals with the increase of employment opportunities in shops since the inception of the Scheme, and the willingness of the local populace to undertake such employment. For shops to offer an increased number of jobs, business must improve. Therefore the second section examines the extent to which the shops could expand.

A. EMPLOYMENT OPPORTUNITIES RECENTLY GENERATED IN THE VILLAGE OF KEISKAMMAHOEK

An examination of the role played by the Keiskamma Irrigation Scheme in generating employment opportunities in the village of Keiskammahoek

was undertaken in an attempt to gain insight into the role of Keiskammahoek as a potential growth centre and the Scheme as a growth industry. Of immediate concern to the study is the initiation of the multipilier effect, through the establishment of the Scheme giving rise to such benefits as increased employment opportunities and purchasing power. A preliminary investigation is also undertaken to assess the willingness of the Gxulu villagers to take up employment in the village of Keiskammahoek.

1. EMPLOYMENT IN THE VILLAGE OF KEISKAMMAHOEK

The results of the interviews with the shopkeepers revealed that only three out of the nine shop owners had increased their number of employees since 1974. All three had incresed their number of employees by two each. There are only 49 employees in all the shops and the six recent employees reflect little improvement of the overall rate of unemployment. The results of the investigation indicate that as yet the irrigation scheme has not initiated a multiplier effect in terms of a notable increase in employment opportunities in the village of Keiskammahoek. Seers (1972) stated that the development potential of a scheme can be judged by examining the extent to which unemployment is reduced. The failure of the Scheme to initiate a multiplier effect minimizes the Scheme's contribution to overall development of the area.

Apart from the possibility of indirectly influencing an increase in employment opportunities in the village of Keiskammahoek, the Scheme could cause the commercial sector to expand in response to the higher buying power of the settler farmers. The commercial expansion that has taken place in Keiskammahoek since 1974 was examined by interviewing the shopkeepers of the nine shops in the village of Keiskammahoek. The shopkeepers noted minimal changes in the amount and type of stock kept but confirmed that there was an increased turnover. Only one shop had changed the quantity of stock kept, as they had decreased their stocks being in the process of selling the shop. The question of type of stock kept was asked to see if more expensive stock was being kept to meet a possible demand born of increased buying power.

Only one shop noted a change in the type of stock kept. All shops noted an increase in turnover but would not qualify the extent of the increase. The lack of expansion in the commercial sector could partly explain the fact that only six new employment openings have occurred since 1974. The Keiskamma Irrigation Scheme does not appear to have initiated a multiplier effect in either the expansion of shops or increase of employment opportunities. Furthermore, a more thorough investigation is required to single out the main cause of any multiplier effect in the Keiskammahoek area as the Ciskein sawmill which employs 368 blacks and the two furniture factories could contribute to the multiplier process.

The multiplier effect is an essential process within a growth centre. Moseley (1974) states that the minimum size of a growth centre measured in terms of the population numbers is 5 000 people, whereas the village of Keiskammahoek has a population of 2 858. Moseley (1974) comments on the difficulty in defining a growth centre. If the growth centre indicates an area rather than just a town, then the population will include part of the rural population of 23 942 people (Page, 1977). The size of the village of Keiskammahoek being below the minimum population for a growth centre according to Moseley, suggests that the village is at a disadvantage from the outset. If the surrounding rural population can be included, there is a greater likelihood of Keiskammahoek acting as a growth centre. The village of Keiskammahoek is essentially a service town, as apart from the sawmill and furniture factories, the industries are all service industries, e.g. shops and a hotel. Page (1976) states that service industries bring little capital into the area in which they are located. If the boundaries of a growth centre are not restricted to the urban centre itself, rural industries such as the Keiskamma Irrigation Scheme can be considered in terms of their contribution to the growth of the area. There is a need for further research into the contributions made by the Scheme in areas such as capital formation and social changes. The study has made a preliminary examination of the Scheme in terms of employment opportunities created. However, there is a need for similar

studies to be carried out when the Scheme is fully developed. The present study can be used as a basis for future studies, determining what population threshold is needed on the Scheme before it can act as a growth centre. The study has shown that the present population threshold could possibly be too low to initiate further development. However, there could be other explanations such as the town needing time to respond to new ideas and new employment opportunities. It would be reasonable to assume that for the Scheme to act as a growth centre, for every job created on the Scheme, either one or two more should be created in the village of Keiskammahoek in the tertiary sector, as yet the Scheme has not created corresponding employment opportunities in the village of Keiskammahoek. For every 76 jobs on the Scheme, one has been created in the Keiskammahoek village. In addition to investigating recent employment opportunites in the village of Keiskammahoek, the study examines views held by the local populace regarding their taking up such employment should the opportunities become available in the village.

2. WILLINGNESS TO WORK IN THE VILLAGE OF KEISKAMMAHOEK

The Gxulu respondents' attitude towards wanting to work in the Keiskammahoek district was assessed as a means of judging the populations desire to work in or near their home town. The number of respondent willing to work in Keiskammahoek if jobs were available was 79 (72%) of the 110 heads of households. This is a fairly large percentage and in order to better understand the positive response, the reasons given are examined. The respondents appear to be closely tied to their home town and families as 96% of the 79 answered that they would like to work in Keiskammahoek to be near their families or in their hometown. The ramifications of this expressed desire is a preference for work close to home so that family members do not have to migrate away from home to their work places.

In order to investigate further the views on working in a place other than the village of Keiskammahoek, the respondence (heads of households), were asked whether they wanted the migrant members of the households to work in Keiskammahoek. Of the 110 Gxulu respondents only 53 (48%) answered that they would like migrant members to work in Keiskammahoek and all gave reasons of affinity either to the village, or the family as their reason. The reaons the respondents gave for wanting migrants to work in Keiskammahoek correspond closely with the reasons they give for themselves to work in Keiskammahoek as explained above. There were 72% of the respondents wanting to work in Keiskammahoek and the percentage dropped to 48% wanting their household members to work in Keiskammahoek.

Of the 47 respondents who answered negatively about their members, 27 gave low pay as their reason for not wanting the migrant workers to work in the village of Keiskammahoek. The heads of households could be concerned that the remuneration sent back by the migrants is greater than if they worked in Keiskammahoek. Of the 31 respondents, 16 stated low pay as a reason for themselves not wanting to work in Keiskammahoek. Further investigation is needed to establish which jobs are regarded as low paid and the extent to which this causes people to migrate to other areas for work. The other major reason, given by 13 of the 31 respondents, for not wanting to work in Keiskammahoek was that there were too few job opportunities available. The reason that there is a work shortage supports the findings of the study that there has not been a marked increase in employment opportunities since the inception of the Scheme.

It was expected that the migrants themselves might have a different attitude to the respondents to working in the village of Keiskammahoek. Due to the impracticability of locating each migrant to establish their point of view, the Gxulu respondents were asked if they could comment on the migrant's attitude to working in Keiskammahoek. A large number, 76 (69%) of the respondents stated that they could not answer for the migrant members as regards the second question, while 21 (19%) thought

the migrant members would not want to work in Keiskammahoek and 13 (12%) thought they would. Due to the large percentage (69%) of nil responses, these results were not analysed.

The results from the first section indicated that there has not been a marked increase in employment opportunites in the village of Keiskammahoek and minimal commercial expansion since the start of the Scheme in 1974. The investigation carried out in the second section revealed that a majority of the respondents would appreciate having work in the village to which they belonged, and where their families lived. The expansion of commerce in the village of Keiskammahoek, for example, in the form of increased number of shops, could be accompanied by an increase in employment opportunities. In addition, there could also be an increase in the wages which would in turn increase the numbers wanting to work in Keiskammahoek. The following section investigates the expansion of commerce that could take place in Keiskammahoek in relation to the demand for goods sold.

B. POTENTIAL FOR EXPANSION OF COMMERCE IN KEISKAMMAHOEK VILLAGE

In order to investigate the local demand for goods in the shops in Keiskammahoek, questions on shopping preferences were included on the Questionnaire completed by the Gxulu and Settler respondents. The respondents were asked where they did their grocery shopping and where they shopped for more expensive goods, giving reasons for their answers (Table 20). They were also asked if they would shop in Keiskammahoek if the more expensive goods were available. (Appendix A). These results give some indication as to the demand for a wider range of goods at varying prices.

TOWN PREFERENCES	PURCHASE PREFERENCES			
	Groceries		Miscellaneous Items costing over R10.00.	
	Gxulu	Settler	Gxulu	Settler
	n (%)	n (%)	n (%)	n (%)
Keiskammahoek	100 (100)	20 (100)	45 (41)	5 (25)
King Williamstown			58 (53)	12 (60)
East London			1 (1)	1 (5)
Other			6 (5)	2 (10)

Gxulu (n = 110); Settler (n = 20)

TABLE 20. CHOICE OF TOWN FOR EXPENSIVE AND INEXPENSIVE PURCHASES ACCORDING TO GXULU AND SETTLER RESPONDENTS

As explained in Chapter Three, the village heads and acting heads answered the Questionnaire and this was acceptable because the respondnets represented a cross-section of the populace who were resident in Gxulu. The Settler heads of households answered the questions on shopping preferences. This is acceptable as they are the ones making a living from the Scheme and it is their demands that could make a difference to the commercial sector in the village of Keiskammahoek.

When asked where the respondents would purchase their groceries, all 110 Gxulu and 20 Settler respondents stated Keiskammahoek (Table 20). The response was affected by two feelings, namely distance and credit. The over-riding reason for doing so was that Keiskammahoek is the nearest town. This reason was given by all the Settler respondents and 92% of the Gxulu respondents. This result could be expected because the time and cost involved in travelling to other centres for everyday shopping is prohibitive. The remaining Gxulu respondents (8%) stated that they could get credit in Keiskammahoek and that was their reason for shopping there. It is interesting to note that this was not a consideration for the Settler farmers, possibly indicating their comparative financial security.

The respondents were also asked where they did their shopping for more expensive goods such as radios and furniture. To define 'more expensive' the respondents were asked where they shopped for goods costing more than R10 as the pilot survey revealed that this was the price of the more expensive goods in the village of Keiskammahoek. The purchasing of more expensive goods is mainly done in King Williamstown (Table 20), as 53% of the Gxulu respondents and 60% of the Settler respondents stated this town as their preference. The higher percentage of Settler respondents preferring King Williamstown could indicate that their salaries are spent outside the Ciskei, which would deprive the Ciskei of the benefit accrued from increased monetary circulation. The second preference was for Keiskammahoek for both groups. There was a fairly high percentage (41%) of Gxulu respondents who had this preference. Although this could suggest that the 45 (41%) respondents have a lower buying power, there were also five settler farmers who stated Keiskammahoek as their preference and their buying power should be relatively higher. Further research is needed into this area to assess the comparative buying power of the two groups. The reasons given for choosing a particular town are again mainly economic ones, related to the money saved on travelling and the money saved in purchasing cheaper goods. Those who stated their reasons as being that goods were cheaper, gave this reason for choosing towns other than Keiskammahoek. Only four Gxulu respondents stated that they would not shop at Keiskammahoek if the goods were available. All four gave their reason as being the high cost of goods. The results indicate a difficulty of providing goods in a town which is not accessable by rail and therefore lacks cheap transportation of goods. Bearing in mind that transport costs are included in the price of goods, it is difficult to provide them more cheaply than in King Williams town for example. Further research is needed into this aspect to examine the possibilities of minimising costs so that the demand for goods in the Keiskammahoek village will increase. The question on the respondents willingness to shop in Keiskammahoek if the goods were available was asked to investigate the

possibility of a hidden demand for goods in Keiskammahoek. The results show that all the settler respondents and 97% of the Gxulu respondents would shop in Keiskammahoek if the goods they wanted were available there. In line with the response to the previous questions, a popular reason for desiring to shop in Keiskammahoek was that it would minimize transport costs. All the Settler respondents and 97% of the Gxulu respondents gave the advantages of cheap transport as their reason. The remaining 3% of the Gxulu respondents stated their preference for Keiskammahoek was because it was their home town. A prime consideration of both Gxulu and Settler respondents is to minimize travelling costs. This need would be an advantage for the expansion of commerce in Keiskammahoek if it were able to provide the goods in demand at an acceptable price.

There was a small group of 11 respondents who stated that they obtained more expensive goods at towns some distance from the Ciskei, such as Port Elizabeth, because members of the household worked there and were able to purchase goods. This result is noted because it serves as an example of a backwash effect of cumulative causation whereby Ciskeians are spending money at their work places outside Ciskei. Their money is then circulating within the South African economy rather than having a similar beneficiary effect within the Ciskei economy. The result supports earlier suggestions made in the study that there is a need for migration to be reduced. In this instance, work is needed in Ciskei towns and an expansion in commerce so that goods can be supplied to meet demand. However, the situation is a complex one and requires careful research into all related areas of supply and demand, unemployment, national and international economic trade relations, transport costs and many other fields before an understanding of what factors will bring about required changes in unemployment and the migrant situation can be determined.

The study has shown that there has not been sufficient commercial expansion in the village of Keiskammahoek to bring about an increase

in job opportunities. There is a demand for goods in the village of Keiskammahoek. However, this demand is not yet large enough to make itself felt in the commercial sector. Further research is needed to investigate the exact nature and size of demand, and what is needed to bring about commercial expansion. The preliminary investigation has shown that the Scheme has not acted as a growth centre producing beneficial multiplier effects in the village of Keiskammahoek in its first years of operation.

SUMMARY

The first part of the hypothesis tested was whether the avenues of employment in the form of settler farmers were readily available to the local population. The results, summarised in Table 21, showed that only a small percentage of the population (14%) of the total sample could apply as settler farmers. The study has shown that the Scheme provides new avenues of employment for less than a fifth of the population and therefore the hypothesis that the Scheme will provide employment opportunities to the local populace is not accepted as regards settler farming opportunities.

The second part of the hypothesis tested whether the wage employment opportunities created by the Scheme were attainable by the local populace. The hypothesis was accepted in that 83% of the jobs were for unskilled labour, corresponding to the large percentage (95%) of the total Gxulu sample who fall into this category. As Table 21 shows, only 5% of the total sample had skills related to those required on the Scheme, therefore the local populace would be unable to apply for skilled jobs. Furthermore, the jobs are mainly for males and the females constitute 57% of the Gxulu sample. The Scheme provides for only 10% of the Gxulu female heads of households and female household members. Therefore the hypothesis is not accepted for the female sector of the population.

EMPLOYMENT OPENINGS ON THE SCHEME	GXULU RESPONDENTS WHO QUALIFY					
	NUMBER OF OPENINGS	HEADS OF HOUSEHOLD		HOUSEHOLD MEMBERS		TOTAL
		n	% (n=110)	n	% (n=266)	n % (n=370)
I Settler Farmers:	175	14	(13)	36	(14)	50 (14)
II Wage Employment:						
Skilled/Semi-skilled jobs	71	8	(7)	12	(5)	20 (5)
Unskilled jobs (Including un-related skills)						
Males:	321	24	(22)	119	(45)	143 (38)
Females:	21	78	(71)	135	(51)	213 (57)
TOTAL:	413	110	(100)	266	(100)	376 (100)

TABLE 21. EMPLOYMENT ON SCHEME RELATED TO GXULU SAMPLE

An important consideration is the extent to which the Scheme might reduce the percentage of unemployed (57%) of Gxulu heads and members together. The number in the sample unemployed was 216. The Scheme, through openings of 175 settler farmer positions, and 413 wage employment openings, could cater for such a number. However, this number is a sample representation of an estimated 1 526 people in Gxulu alone. Taking all 35 villages (in the Keiskammahoek District) into consideration, the effectiveness of the Scheme bringing about a marked reduction in unemployment is considerably lessened. The Scheme provides employment for about 3% of those unemployed, and therefore it is not accepted that the Scheme has created employment opportunities in terms of bringing about marked reduction in unemployment.

When studying the possibility of the Scheme indirectly bringing about an increase of employment opportunities in the village of Keiskammahoek, similar results were experienced to those in the other two areas of employment generated by the Scheme. The investigation showed that respondents were willing to work in the village of Keiskammahoek, but that the multiplier effect (Myrdal, 1957) was not taking effect. Jobs were not being generated as an indirect result of the Scheme, and therefore new avenues of employment were not being created in this sphere. Furthermore, the full-time farming opportunities, of necessity, are restricted to a minor group of males between 25 and 50 years who have passed Standard Four. The local populace is largely unskilled (95%) and therefore the unskilled employment openings are the primary avenues of employment open to the local populace. The analysis carried out in Chapter Four reveals that the Scheme has created limited employment opportunites for the local populace. In concluding the study, this major result along with other pertinent areas raised in the analysis will be placed in the context of the Ciskei as an underdeveloped country. The role played by the Scheme in creating employment opportunites is commented upon in terms of beneficial and non-beneficial aspects emerging from examination of the Scheme and the state of the Scheme as a development strategy will be reviewed.

CHAPTER FIVE

CONCLUSION

The intention of the study was to examine the impact made by a particular form of development strategy on an underveloped area. In particular the study examined the employment opportunities created for the local populace by the Keiskamma Irrigation Scheme. The results showed that although the requirements for entrance onto the Scheme as full time farmers could be met by a large proportion of the male population between 25 and 50 years, the Scheme was not able to bring about a marked reduction in unemployment. Similarly, the 413 wage employment opportunities on the Scheme created employment for only a small percentage of the local populace. The conclusion reached on investigating the role of the Scheme as a growth centre initiating multiplier effects on the Keiskammahoek village was that, as yet, such effects as increased employment opportunities have not been achieved.

Seen in the wider context of the Ciskei, the results point to the need for labour intensive development strategies if unemployment is to be effectively reduced. The probable conflict with economic growth aims (Byerlee and Eicher, 1974) indicates a need for a fundamental rethinking of the past emphasis on economic growth, a need reiterated by Maasdorp (1977). Galenson (1971) points out that satisfactory growth is not enough to provide against severe unemployment. The Keiskamma Irrigation Scheme aimed at both reducing unemployment and promoting economic growth. The study has shown that the former aim has not been achieved to any great extent.

A particular aspect of development strategies aimed at promoting economic growth is the use of capital intensive technology at the expense of labour employment.

An example is the use of milking machines on the Scheme. As demonstrated in Chapter Four, the issue is a complex one, and therefore economic growth cannot be totally discredited as a factor reducing unemployment. Inukai (1971) has demonstrated in a study on Thailand that mechanisation of selected activities can lead to increased employment. Labour intensive techniques could be detrimental to the overall performance of the development strategy and cause it to fail. In the case of the Scheme, milking machines enable a high standard of production to be maintained and the sale of the milk can successfully compete on the market. The example has been elaborated again as it serves to illustrate the need for an understanding of the wider economic and socio-politico issues involved in carrying out developmental aims, in this case tampering with the means of milk production may affect its market value. In addition a comprehension of interrelated issues will enable a more constructive evaluation of aims than has been possible in this study.

The study has served to point out the inability of the Scheme as yet to bring about a marked reduction in unemployment. This result suggests two avenues of research. Firstly, there is a need to know how the Scheme could bring about a greater reduction in unemployment. Secondly, there is a need for alternative development strategies that are able to provide a sufficiently large number of jobs to reduce unemployment in the rural area. Both these avenues of research would need to consider the interdependencies that exist in the Ciskeian and South African economic structure. An understanding of these interrelationships would provide a basis for manipulating meaningful change. Returning to the example of the milking machines as an illustration; should machines be put aside for the sake of employing more labour and the quality of production decrease as a result, there is a possibility that the ensuing loss of profit would be offset by employing less people. If, however, the market is such that a reduction in quality of milk does not affect the sales, then hand milking could be considered as a viable alternative to milking by machine.

A study of interrelationships would possibly require a neo-marxian approach to development as this approach focuses on interdependencies. A neo-marxian study would provide a useful complement to the present study which is based on the Western approach to development.

The Western approach envisages a development strategy acting as a lever to further growth in the area. The Keiskamma Irrigation Scheme aims to act as a growth centre initiating multiplier effects in the Keiskammahoek village. The investigation into the commercial sector of the village showed that as yet no multiplier effects had been experienced. The Scheme has, as yet, failed to provide the leverage to development in this area. This result has implications for the core-periphery model which has been used by Page (1976) as a basis for development in the Ciskei. The core-periphery model has been applied to the Ciskei in the form of instituting growth points at strategic places. The Keiskammahoek area is a growth region and the study has shown that as yet one of the major development strategies in the area has not contributed to such processes as cumulative causation that will initiate rapid development in the area. There is much scope for research into growth points as strategies for development related to the Ciskei, especially as the Ciskei is still dominated by the South African economic structure.

The study has examined a development strategy in its preliminary stages as recommended by de Wilde (1967). As a result, certain considerations must be made before drawing conclusions about the core-periphery model, as a strategy for development. It must be noted that the Scheme had been operating for three years at the time of the study. It is possible that a longer time is needed for growth to be promoted in the area. Furthermore, the investigation was restricted to those aspects of the commercial sector that affected employment. There could be other growth areas, for example

improved health facilities and improved education, that may have been initiated by the Scheme. These areas need to be examined to provide a comprehensive assessment of the Scheme as a growth centre and in turn the viability of the core-periphery model as a basis for development.

The examination of the developmental impact of the Keiskamma Irrigation Scheme has shown that it has created very little in the way of new job opportunities for the local populace. It is important to note that the standard of education required to be settler farmer can be met by the majority of males between 25 and 50 years and therefore the Scheme is open to the local populace. Furthermore, there is a large percentage (83%) of unskilled employment opportunites which matched the local situation, where 95% approximately of the local populace are unskilled or skilled in areas unrelated to the Scheme. The study has revealed a need to examine the Scheme within the broader context of the Ciskeian economy. This is necessary to understand what changes are needed on the Scheme and within the Ciskeian economy to effectively reduce unemployment. A more extensive investigation is required into the Scheme's role as a growth centre to follow on from the preliminary findings of the study. These corporate studies could enable developmental aims to be formulated such that meaningful changes are affected in the crucial areas of unemployment, poverty and inequality (Seers, 1972), and thus promote development in an underdeveloped area.

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QUESTIONNAIRE CONFIDENTIAL

R H O D E S U N I V E R S I T Y

GEOGRAPHY DEPARTMENT

This is part of a research project of Rhodes University in Grahamstown. We are investigating work opportunites in this area. We are asking for your co-operation.

Code Number: SD	Section	No	Date Date	Month	Questionnaire No. 2	3	4

1. Personal

1. Are you head or acting head of the household? (6)

Head 1

Acting head 2

2. Sex (7)

Male 1

Female 2

3. How old are you? (8 9)

4. Highest standard passed at school (10 11)

5. What training have you had in agriculture? (12)

None 0

Subject at School 1

Fort Cox 2

University 3

Other 4

If trained at a place other than these state where: .....

6. How many years have you spent in agricultural training at this Institution? (13 14)

7. What, if any, other technical training have you had?

15

None	
Mechanic	
Electrician	
Plumbing	
Other	

If none of these state what:

.....

16

8. Do you hold any of the following licences?

None		0
Motorbike		1
Tractor		2
Car		3
Medium duty (9)		4
Heavy duty (10)		5
Extra heavy duty (11)		6

II. Shopping Patterns

19

9. Where do you do your grocery shopping?

Keiskammahoek		1
King Williams Town		2
East London		3
Other		4

20

10. Why do you do your grocery shopping here?

Nearest Town		1
Can get credit		2
Don't pay transport money		3
		4
		5
		6

If for other reasons state what: .....

.....

.....

21

11. Where do you buy the more expensive possessions you have (R10 or more)

Keiskammahoek		1
King Williams Town		2
East London		3
Other		4

If at none of these state where:

.....

12. Why do you do your more expensive shopping here?

If for other reasons, state what:

.....

.....

22

Nearest town	1
Gives credit	2
Goods are cheaper	3
	4
	5
	6

13. If these items were available at Keiskammahoek would you always shop at Keiskammahoek?

23

Yes	1
No	2

14. If answered yes, why?

If for other reasons state what:

.....

24

N.A.	0
Don't have to pay transport	1
Can get credit	2
Too busy at home to go far	3
	4
	5

If answered no, why?

If for other reasons state what:

.....

25

N.A.	0
Goods are too expensive	1
I enjoy visiting other towns	2
	3
	4
	5

The following two sections to be answered by DRYLAND FARMERS ONLY.

III. Employment

15. Are you employed?

28

N.A.	0
Yes	1
No	2

16. If you are employed what work do you do?

29

N.A.	0
Office	1
Agriculture	2
Domestic	3
Forestry	4
Industry	5

Mining 6
Other 7

17. Where do you work? (30)
N.A. 0
Keiskammahoek District 1
In the Ciskei 2
Outside the Ciskei 3

IV. Attitude to Migration

18. If you do not work in the Keiskammahoek district would you like to? (32)
N.A. 0
Yes 1
No 2

19. If you answered yes, why? (33)
N.A. 0
Be near family 1
I belong here 2
If for any other reasons state what:
..... 3
..... 4
5

If answered no, why? (34)
N.A. 0
Low pay 1
Shortage of work 2
If for any other reasons state what:
..... 3
..... 4
5
6

20. Would you like those in your house hold who are away to work in the Keiskammahoek district? (35)
N.A. 0
Yes 1
No 2

21. If you answered yes, why? (36)
N.A. 0
They belong here 1
Otherwise too far away 2
If for any other reasons state what:
..... 3
..... 4
5

37

If you answered no, why

N.A. 0
Low pay 1
Shortage of work 2
3
4
5

If for any other reasons state what: .....

.....

38

22. Do you think those who are away would like to work in the Keiskammahoek area?

N.A. 0
Yes 1
No 2

39

23. If you answered yes, why?

N.A. 0
1
2
3
4
5

.....

.....

40

If you answered no, why?

N.A. 0
1
2
3
4
5

41

24. If there was a job available for you on the Scheme would you take it?

N.A. 0
Yes 1
No 2

42

If you answered yes, why?

N.A. 0
Want to work near family 1
High pay on Scheme 2
Can take part in family affairs 3
4
5

If for other reasons state what:

.....

.....

43

If you answered no, why?

N.A.	0
Unhealthy to work there	1
	2
	3
	4
	5

If for other reasons state what:

.....

.....

44

26. If you could qualify as a settler farmer would you farm there?

N.A.	0
Yes	1
No	2

45

27. If you answered yes, why?

N.A.	0
I want to improve agric.	1
I belong here	2
	3
	4
	5

If for other reasons state what:

.....

.....

46

If you answered no, why?

N.A.	0
Not allowed to milk the cows	1
Not allowed to take own stock	2
Not allowed to own the cows	3
	4
	5

If for other reasons state what:

.....

.....

V. Household

Fill in the details of those members of the household between 15 and 65 years of age. Put the head of household's details on the first line.

Sex M/F	Age	Standard of Education	What Technical Training	Employed Unemployed	Where do they live if un-employed	Nature of Employment	Place of Employ-ment

VI. Settler Farmers

This question is to be answered only by Settler Farmer respondents:

29. When did you start on the Scheme as a Settler farmer?

.....

30. Where is your home town?

.....

31. What work were you doing before you joined the Scheme?

.....

32. In which town were you working before you joined the Scheme?

.....

33. Why did you join the Scheme?

.....

.....

DATE 29/12/79 TIME 09/27/58

FILE: GGFSACJ-0682 SUBFILE DRY IN CARD MODE

RUN NAME KEISKAMMA EMPLOYMENT OPPORTUNITIES
FILE NAME KEOP, EMPLOYMENT OPPORTUNITY SURVEY
VARIABLE LIST QNO,AREA,HEAD,SEX,AGE,EDUC,AGRICTR,AGRICYR,TE
LICENCE,CHEAPTWN,CHEAPRSN,EXPTWN,EXPRSN,KSHOP
KSHOPPOS,KSHOPNEG,EMPLOY,WRKTYPE,WRKTWN,KWRK
KWRKPOS,KWRKNEG,MIGKWRK,MIGPOS,MIGNEG,THEYKW
THEYPOS,THEYNEG,WRKIRIG,WRKPOS,WRKNEG FARMIR
FARMPOS,FARMNEG,DATE,HOME,WRK,WRKPLACE,IRIGRS
INPUT FORMAT FIXED(F3.0,0X,F1.0,2X,2F1.0,2F2.0,F1.0,F2.0,2
0,2X,7F1.0, 2X,3F1.0,1X,15F1.0,2X,5F1.0)

NO. OF CASES 110
INPUT MEDIUM CARD
VAR LABELS QNO,QUESTIONNAIRE NUMBER/
AREA,LOCATION OF RESPONDENT/
HEAD,HEAD OR ACTING HEAD OF HOUSEHOLD/
SEX,SEX OF RESP/
AGE,AGE IN YEARS/
EDUC,EDUCATION IN YEARS/
AGRICTR,AGRICULTURAL TRAINING RECEIVED/
AGRICYR,NO. OF YEARS IN AGRIC TRAINING
TECHTR,TECHNICAL TRAINING RECEIVED
LICENCE,VEHICLE LICENCE/
CHEAPTWN,TOWN WHERE CHEAPER GOODS PURCHASED/
CHEAPRSN,REASON FOR PURHASE OF CHEAPER GOODS TH
EXPTWN,TOWN WHERE EXPENSIVE GOODS PURCHASED/
EXPRSN,REASON FOR PURCHASING EXPENSIVE GOODS TH
KSHOP,WOULD RESP ALWAYS SHOP AT KHOEK/
KSHOPPOS,REASON FOR ALWAYS SHOPPING HERE/
KSHOPNEG,REASON FOR NOT ALWAYS SHOPPING HERE/
EMPLOY,EMPLOYED OR UNEMPLOYED/
WRKTYPE,NATURE OF EMPLOYMENT/
WRKTWN,PLACE OF EMPLOYMENT/
KWRK,WILLINGNESS TO WORK IN KHOEK/
KWRKPOS,REASON FOR WANTING TO WORK IN KHOEK/
KWRKNEG,REASON FOR NOT WANTING TO WORK IN KHOEK
MIGKWRK,WILLINGNESS TO HAVE MIGRANT MEMBERS WOR
IN KHOEK/
MIGPOS,REASON FOR WANTING THEM TO WORK IN KHOEK
MIGNEG,REASON FOR NOT WANTING THEM TO WORKIN KH
THEYKWRK,POSSIBILITY OF MEMBERS WANTING TO
WORK IN KHOEK/
THEYPOS,REASON FOR THEY WANTING TO WORK IN KHOEK/
THEYNEG,REASON FOR THEY NOT WANTING TO WORK
IN KHOEK/
WRKIRIG, WILLINGNESS TO WORK ON SCHEME/
WRKPOS,REASON FOR WANTING TO WORK ON SCHEME/
WRKNEG,REASON FOR NOT WANTING TO WORK ON SCHEME/
FARMIRIG,WILLINGNESS TO FARM ON SCHEME/
FARMPOS,REASON FOR WANTING TO FARM ON SCHEME/
FARMNEG,REASON FOR NOT WANTING TO FARM ON SCHEME
DATE,DATE STARTED ON THE SCHEME/
HOME,SETTLER'S HOME TOWN/
WRK,SETTLER'S PREVIOUS EMPLOYMENT/
WRKPLACE,PLACE OF PREVIOUS EMPLOYMENT/
IRIGRSN,REASON FOR JOINING THE SCHEME/

KEISKAMMA IRRIGATION SCHEME
FORM OF APPLICATION FOR EMPLOYMENT WITH A VIEW TO BECOMING A TENANT FARMER

Surname ..... Initials .....

Postal address .....

Identity No. .... Ethnic Group .....

Date of birth ..... Age ..... years

Place of birth ..... District .....

Father's place of birth ..... District .....

Last school attended .....

Highest standard passed ..... Year .....

Technical qualifications .....

Marital status ..... No. of children .....

Employment Record

From	To	Employer	Job
Present			

Present wage R .....per month

Agricultural Experience

From	To	Experience

*

Do you drink alcohol?	Regularly	Sometimes	Never
What is the state of your health?	Poor	Average	Good

If not good, what is the problem? .....

2/...

(*Cross our blocks not applicable)

What serious illnesses or injuries have you suffered?

	Year	Illness or Injury
1		
2		
3		
4		

Give particulars of criminal convictions, if any

Date	Offence	Sentence

What private positions do you hold (e.g. deacon, club secretary, etc.)?

.....

.....

Do you have a valid drivers licence ?

No	Yes

Please provide the names and addresses of two referees who know you well. These referees should be civil servants, ministers of religion, school headmasters, Chiefs, employers and the like, i.e. men or women in responsible positions to whom reference can be made about you.

1. Name
Address
Position
2. Name
Address
Position

Certification

I have read the explanatory note about the Keiskamma Irrigation Scheme and I understand it. The above particulars about myself are true and correct.

Signed .....

Date .....