

A Case for Institutional Investigations in Economic Research Methods with reference to South Africa's Agricultural Sector

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A Case for Institutional Investigations in General Economic Research and South Africa's Agricultural Policymaking Sector

Cyril Nhlanhla Mbatha

ABSTRACT

Economic development remains elusive for many world economies, but especially those of African countries. The current global inequalities in terms of GNP per capita and human living standards between developed and developing nations have ensured that the challenges of food insecurities are only some of the many negative experiences of underdevelopment in the African continent. Hence, delivery pressures are increasing on policy makers and researchers to provide tangible and timely economic solutions to the resilient state of underdevelopment.

In the policy fights against the challenges posed by a lack of development in South Africa, the agricultural sector has in the past and continues in the present to play a central role. Such is the case because the majority of citizens rely on agricultural production activities for their livelihoods. For instance, even though the sector only contributed four percent towards the national Gross Domestic Product in 2006, in the Eastern Cape Province, more than seventy percent of the total population resided in rural areas. Moreover, in 2004 more than sixty percent of the national formal and informal employment levels were found in the sector. These economic indicators do not only reinforce the assertions that high levels of geographical and sectoral inequalities exist in the country's economy, but they also illustrate the importance of the agricultural sector in public policy attempts, which are aimed at achieving food security alongside long-term developmental objectives.

Some economists, especially the proponents of institutionalism, have argued that most of the recommendations to public policy interventions from mainstream economic research endeavours are not adequately helpful. The recommendations generally lack

well considered and socially effective ideas, mainly because there remains some level of ignorance about the impacts that institutions have on economic and social systems. Some argue that this ignorance is reflected in (flawed) hedonistic and rationalist assumptions made about economic actors and in the methodological thinking of many research designs and economic analyses. The misuse of formal tools and statistical methods, for example, are some of the important factors, which have led to failures of the discipline of economics to provide effective policy solutions to problems of underdevelopment and poverty, especially in poor country environments.

The thesis, having taken account of the majority of criticisms levelled against the classical and new-classical economic schools of thought, argues that the discipline as a whole lacks a paradigmatic integration of institutional and new-classical economic perspectives to offer appropriate guidelines for a methodology aimed at achieving socially responsive research outputs. The lack of this integration has resulted in a skewed selection of methods by economists, which are employed in research without a supportive and in-depth understanding of institutional and social factors. To support the thesis, a more effective and integrated framework for economic research is developed and presented with case study illustrations in a cumulative manner. The 20th century history of agricultural policies in South Africa, the agricultural and institutional case studies from the Eastern Cape Province alongside reviews of other agricultural studies are all used in presenting a case for rigorous institutional investigations in general economic research. These are also used in developing the proposed integrated framework, which aims to give guidance in developing research methods, which are more socially responsive.

Having shown the usefulness of the proposed research framework, the thesis recommends that public policy interventions (at national and local levels) should aim to eliminate all types of institutions which have high associated transactional costs. The interventions should also encourage the emergence and growth of the types of institutions, which present the lowest costs to initiatives of economic development. In the primary case studies from the Eastern Cape Province, the insecurity of land tenure and the various local initiatives of business ventures are highlighted as two examples of the types of institutions, which respectively present high and low transactional costs to local initiatives of agricultural and economic development.

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ACRONYMS

AGRITEX	Agricultural, Technical, and Extension Services
CAB	Ciskei Agricultural Bank
CASP	Comprehensive Agricultural Support Programme
CBA	Cost Benefit Analysis
CCAW	Coordination Committees on Agricultural Water
CCSIS	Coordinating Committee on Small-Scale Irrigation Support
CF	Catchment Forum
CIA	Central Intelligence Agency
CMA	Catchment Management Agency
CV	Contingent Valuation
DLA	Department of Land Affairs
DoA	Department of Agriculture
DoL	Department of Labour
DWAF	Department of Water Affairs and Forestry
HACOP	Hertzog Agricultural Cooperative
HDI	Historically Disadvantaged Individuals
HSIU	Heath Special Investigation Unit
IAC	Irrigation Action Committee
IDA	Institutional Decomposition Analysis
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
IOA	Input-Output Analysis
IWRM	Integrated Water Resources Management
KRV	Kat River Valley
KRV WUA	Kat River Valley Water User Association
LRAD	Land Redistribution for Agricultural Development
NGO	Non Governmental Organisation

NIE	New Institutional Economics
NWA	National Water Act
NWP	National Water Policy
NWRS	National Water Resources Strategy
OIE	Old Institutional Economics
O&M	Operations and Maintenance
SADT	South African Development Trust
SMME	Small Medium and Micro Enterprise
WC	Ward Council
WDRDC	Water Department of the Rural District Council
WMA	Water Management Area
WRC	Water Research Commission
WRM	Water Resource Management
WUA	Water User Association

Key words:

Economic research methods, institutional economics, development economics, agricultural policy in South Africa, the Kat River Valley, agricultural businesses, the Former Ciskei

CHAPTER ONE – INTRODUCTION

1.1 INTRODUCTION

There are generally increasing pressures for economists to provide policy makers with useful recommendations from their research outputs within limited resource and time constraints. In developing countries, especially, public planners are often in desperate need of expert input in areas where their own knowledge is very limited. However, the recommendations to policy formulation processes from some economic research and thinking processes have only contributed negatively to general economic, social and political spheres. For instance, Eicher (1999) discusses a number of failed agricultural projects in African countries due to poor policymaking based on ignorant economic thinking about the effects of institutions.

Institutional economists throughout the 20th century have always argued that many of the assumptions made in classical economic thought, for example the assumed hedonistic and rationalistic mentality of actors in economic transactions, have been inaccurate at best (Rutherford, 2001:175). Moreover, the use of scientific methods of research in economics has in most cases been inappropriate and ineffective because the methods are not particularly suited to social science investigations (Evensky, 2004). Hence, a big portion of the faith placed by policy makers on the majority of economic research outputs is arguably unwarranted. However, in the same breath, the critics of mainstream economic research thinking, methods and conclusions have not provided any convincing alternative solutions to the criticisms (Coase, 1998).

In the light of the challenges to public policy planning and their need for support from economic research, which is not adequate especially in developing countries, it is apparent that a new way of thinking about economic questions is required. In African countries, like South Africa, whose majority of citizens rely on agricultural production activities for their livelihoods, the new way of thinking in the sector would be most useful. Hence, the thesis proposes an integrated framework for economic research, which enables an institutionalised context for the use of selected formal economic methods by researchers within South Africa's agricultural sector. An explanation of the framework and its motivation are presented in the following

section. A historical review of agricultural policies in South Africa is outlined in section three. A preview of thesis chapters is presented in section four.

1.2 THE RESEARCH CONTEXT

The most significant challenges for economic development that are facing the South African economy at present include household income inequalities, especially in terms of geographical location. Simkins (2004) reported a *gini* coefficient of 0.67 between 1995 and 2000. In 2006, the poorest regions in terms of Gross Geographical Product (GGP) *per capita* were the Limpopo and the Eastern Cape provinces with GGP per annum figures of 3.3 and 5.3 thousand rands per capita per year respectively (Stats S.A., 2006a)¹. The two provinces also had some of the highest rural populations in the country. For example, the Eastern Cape's population living in rural environments was reported at seventy percent in 2006. Moreover, while the national unemployment rate stood at above twenty six percent, using the narrow definition (Black *et al*, 2005:216), the figure was at sixty percent in some rural areas (Eastern Cape Government Report, 2004). The indications from the statistics are that high levels of underdevelopment exist in areas whose economic activities are mostly dependent on agricultural production. Nieuwoudt *et al*. (2004:162) reported that sixty percent of the national formal and informal employment was in the agricultural sector, which may reinforce the argument that the agricultural sector remains crucial in South Africa's fight against poverty and food security. The sector employs the highest number workers in the country. Hence, a research focus on the agricultural sector for economic development purposes is strongly motivated.

However, agriculture as a subject of research and policymaking has always posed great challenges to analysts and public planners, especially in African countries. Eicher (1999:1) reported that agricultural projects in the continent have been characterised by inefficiencies and failures, which have exacerbated the experiences of food shortages. He argued that "the primary cause of Africa's challenges (especially in agriculture) is a seamless web of internal and external factors *rather*

¹ The richest province was Gauteng with 18.9 thousand rands per capita per annum

*than a single source*² such as colonialism, geography, a lack of technology”, etc. Therefore the planning of agricultural projects aimed at improving productivity has come short primarily because of a misplaced focus on particular sources of efficiencies instead of seeking solutions from well-coordinated and multi-policy responses to equally match the challenges stemming from a complex ‘web’ of institutional factors.

The same failures of policy efforts to invest on discovering institutional solutions in public planning are the same failures that institutional economists argue are facing mainstream economic research endeavours. Meanwhile, there is an extensive history of fierce debates in the field of development economics regarding even the definition of the concept of economic development (Hirschman, 1960, Sen, 1982, etc.) and the extent to which such development could be achieved with and/or without public interventions (Domar, 1957, Myrdal 1957, Sen, 1982, Lal, 1983, Griffin and Gurley, 1985, etc.). In reaction to the debates, the ‘new’ institutionalists argue that such has been the case mainly because the methods and tools of interrogating knowledge in economics have been inadequate for a social science discipline (Evensky, 2004). The use of formal methods, like axiomatisation and statistics, without any basis from an institutional understanding of the investigated area has been the subject of historically documented criticisms from ‘old’ and ‘new’ institutional economists alike. For these and similar reasons, Coase (1998:73) quipped that the discipline of economics had become a study of blood circulation without a body and to an extent that “economists think of themselves as having a box of (mathematical) tools, but not the (actual) subject matter”. Hence, from this brief discussion it should not be a surprise that policy formulation processes (especially in African agricultural projects), which have been informed by economic research have had widely documented failures (Eicher, 1999).

On the other hand, with all the criticism levelled against formal methods in new classical economics, institutionalists have not provided much in terms of useful methodological propositions as solutions. Of the ‘old’ institutionalists (e.g. Veblen, 1904 and Coase, 1998:72) argued that even though these scholars were of great

² My emphasis

intellectual stature, they were essentially anti-theoretical, “without a theory to bind together their collection of facts, they had very little that they were able to pass on”. A similar view was expressed by Williamson (2000) that institutionalists still await a universal and unifying theory of their own work.

Therefore, the primary aim of the thesis is to propose and discuss the usefulness of a unifying theoretical framework for conducting economic research (with a specific focus on agriculture) which pays extensive attention to the core criticisms of institutionalists levelled against mainstream economics and the misuse of formal methods. The framework forms an ‘interface’ between the new institutional and classical economic methods of research. It identifies the position and usefulness of formal methods in institutionally based economic research with contextualised social meanings for public policymaking. The broad argument that is adopted from the ‘new’ institutionalism is that most contemporary economic thought lacks a methodological and paradigmatic integration of institutional and new classical economic arguments to research. The lack of integration has especially resulted in a generally skewed selection of formal methods and tools in the majority of mainstream economic research projects. Such adoptions have been without a foundation, which is adequately supported by an understanding of institutional factors in given geographical areas.

To illustrate the thesis, historical policy and quantitative data from South Africa’s agricultural sector and the Eastern Cape’s Kat River Valley (KRV) water catchment are presented for discussion and analysis. The 20th century history of South Africa’s agricultural policies and three primary case studies from the KRV provide an institutional foundation for discussing and demonstrating the use of the proposed integrated framework. Survey data from the KRV is used to illustrate selected potential uses of formal tools in research, which is firmly grounded on institutional understandings and arguments. Hence, throughout the thesis, issues of agricultural development are discussed with criticisms of and recommendations for various policies in the sector being provided.

1.3 A BRIEF REVIEW OF SOUTH AFRICA'S AGRICULTURAL POLICY CHALLENGES

Many of South Africa's challenges with regard to unequal development, high levels of poverty and unemployment, especially in rural areas are due to systematic and inefficient public policies of the last century. There are landmark legislations in the history of the country, which formed and cemented the foundations of an unequal society marred by an inequitable distribution of agricultural resources such as land water and market access. The legislations include the Natives Land Act (27 of 1913), which was the major and first in a series of legal statutes that promulgated an unequal distribution of land resources by racial grouping. The legislation led to a scheduling of land in the form of reserves for occupation only by 'native' populations. The reserves formed only eight percent of the country's total land area, which was demarcated for occupation by more than eighty percent of the country's total population (Isaacs and Hersoug, 2002:143-144).

The Marketing Act (26 of 1937) on the other hand, became law due to the lobbying of government by powerful commercial farmers because of negative international experiences of unstable agricultural markets after the First World War. The Act resulted in strong government interventions in almost each and every crop market and institution. It entailed that the farms owned by those favoured by the state-supported institutions would grow in size and level of capitalisation (de Swardt, 1983) with long-term negative economic consequences, especially for emerging farmers and consumers³ (Vink and Kirsten, 2002).

In the irrigation water sector, the Water Act (54 of 1956) promulgated riparian water rights in South Africa, where abstraction rights could be linked to farm positions and sizes along a watercourse. Hence, the law ensured that the majority of the landless subsistence farms were technically denied equitable water access and use. Ultimately, these historical laws ensured that the majority of the population were systematically left without adequate land, market access and water resources, which are today some

³ A more detailed historical discussion of the Marketing Act (26 of 1937) and related effects is presented in chapter five

of the biggest challenges facing the public policymaking processes in the agricultural sector.

Throughout the 1990s, numerous laws and amendments were enacted to redress the inequalities and inefficiencies stemming from the historical legislations in the sector. The Restitution of Land Rights Act (22 of 1994) was one of the first laws to be passed “to provide for the restitution of rights in land to persons or communities dispossessed of such rights after 19 June 1913 as a result of past racially discriminatory laws or practices”. Other related laws pertinent to the land reform process are discussed in more detail with subsequent challenges from their implementation in coming chapters. The Marketing of Agricultural Products Act (47 of 1996), some of whose aims are to increase market access to all participants and promote efficiency of marketing products, was a redress policy response from the government, which has had some successes as well as unintended failures, which will also be discussed later in the thesis. In the water sector, the National Water Act (NWA, 36 of 1998) and other related Acts were passed with aims to “ensure that water resources (were) protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors”, a promotion of equitable access, redress of past racial and gender discrimination, and promotion of efficient, sustainable use of water resources (NWA, 1998:10-11).

These are only some of the current laws that have been passed by the present government to confront the challenges of underdevelopment in agriculture. However, the technical formulation and implementation strategies of these laws, as will be discussed in the thesis, have not always been successful. In many instances, this has been a result of ignorance about important institutional factors, with which the primary argument of the thesis is concerned, in terms of both economic research designs and public policy formulation. Therefore, the presentation and discussion of past and current policies with case study data and the policy recommendations, which are presented later in this document, are centred on an integrated theoretical framework, which was developed to form an interface between the ‘new’ institutional and classical economics methods of research.

1.4 A PREVIEW OF CHAPTERS

The thesis is composed of eight chapters: a) the present introduction, b) a review of historical debates in the sub-discipline of development economics, c) a review of institutional criticisms levelled against 'new' classical economic thinking and research methods, d) a description of methods used to collect and analyse data for the thesis, e) a discussion of the 20th century agricultural policies in South Africa and their economic impacts, f) a presentation of primary case study data from the Kat River Valley in the Eastern Cape province, g) a discussion and analysis of primary data and policy as well as a review of secondary data in developing an integrated research framework, and h) a presentation of selected policy recommendations with a concluding note.

Chapter two first reviews definitions of economic growth and development and how the two relate to each other (e.g. Sen, 1982). The adopted definitional stance for the thesis is one that positions the process of development at a mental and attitudinal level. In this perspective a critical mass of the population should have the right mental attitude that is conducive for the developmental process as encouraged by policy intervention to take place. It is an expansion of Hirschman's (1960) 'societal images', where societies should have an image of themselves that compliments the type of development that is encouraged by external forces. For this type of development to be effective, a holistic and well-coordinated policy approach to the process needs to be adopted. Secondly, historical neo-Marxist and pure-market theories of economic development are reviewed highlighting the economic values of focussing on institutional coordination. Overall, the review systematically illustrates the importance of cultural and institutional values as complementary conditions to external interventions that are not particularly obsessed with achieving one critical condition for the development process to take place, for example the right level of capital accumulation or technological growth. However, the focus is on a well-coordinated institutional effort as ultimately crucial in attempts to achieve economic development in a given geographical and political context.

A historical review of 'new' and 'old' institutionalism is presented in chapter three. The early criticism of classical economic thought, methods and policy approaches are

reviewed with references made to the works of Thorstein Veblen (1898 and 1904), Wesley Mitchell (1923) and John Commons (1924). Although the ‘old’ institutionalists made valid criticisms against some of the dominant economic thoughts, ultimately as argued by Coase (1998) they failed to provide any alternatives. Hence, the works of the ‘new’ institutionalists (e.g. North, 1990) are reviewed as having acknowledged and retained some of the valuable insights from the ‘new’ classical economics. However, it is also demonstrated that what still lacks within the ‘new’ institutionalism is a universally acceptable theory of institutions. The review concludes by presenting a theoretical framework for the thesis’ main discussion chapter.

A description of research methods for collecting and analysing data from the KRV case studies is presented in chapter four. The methods used in each of the three case studies are described alongside those used in the statistical analysis of quantitative data from the 2004 KRV household survey.

Chapter five presents historical information and a description of South Africa’s pertinent agricultural policies throughout the 20th century. First, the history of how the sector assumed its growth at the turn of the century is presented, followed by the early government interventions when the sector, alongside mining, became important for the country’s whole economy. The reviewed policies are those that had various historical effects on the distribution of land and water resources as well as the marketing of agricultural products. Finally, the chapter presents a detailed description of current agricultural policies and their objectives in terms of redressing the current economic challenges, which were inherited from the past. A discussion of how the new policies have fared in the last ten to thirteen years is presented, which signals a need for the adoption of an institutional approach to research in implementation strategies.

In chapter six, a demographic description of the Eastern Cape Province is provided, followed by a detailed historical presentation of the Kat River Valley (KRV) population settlement and agricultural resource patterns of distribution. It is made apparent that the history of South Africa as a country is well reflected in local events, which took place in the KRV during the 20th century. Finally, three detailed

ethnographic case studies of irrigation socio-economic systems and farming groups are presented with particular attention paid on formal and informal institutions, which have predominated the access and allocation of agricultural resources.

Using Williamson's (2000) and Saleth's (2004) hierarchical and evolutionary frameworks of analysis respectively, chapter seven discusses the most significant institutions from each of the three KRV cases. Williamson's (2000) framework is used to discuss and analyse the KRV institutions according to three hierarchies of importance. Saleth's (2004) framework is used to discuss the same institutions according to their contributions to economic transactional cost (North, 1990 and 1992) in attempts to achieve development. From the discussions and classifications, the political events and processes, which led to the emergence and evolution of significant institutions are analysed. Most importantly, a framework that integrates institutional and formal research methods is presented. To demonstrate the value of the framework, a review of agricultural research papers, with a predominantly formal inclination and a neglect of institutional considerations is presented. Finally, implications for theoretical debates and economic research methods is presented. These are supplemented with a presentation of policy recommendations to national and local policymaking processes in chapter eight.

CHAPTER TWO – ECONOMIC DEVELOPMENT FOR DEVELOPING COUNTRIES

2.1 INTRODUCTION

Global inequalities in terms of GNP (Gross National Product) per capita and human living standards between developed and developing nations remain the biggest motivations for economic development in the third world. The search for development has encouraged an emergence of varied definitions of underdevelopment in the last fifty to sixty years. As a result, different and often competing models of development, sometimes based on ideological beliefs, for instance the neoclassical economics (Domar, 1957) versus neo-colonial (Myrdal 1957) models of development were proposed as solutions.

The chapter will present a discussion of the historical evolution of these models, detailing the rich debates, which led to their formulation and modifications. It will be illustrated how a middle ground has been under negotiation for the past ten to fifteen years, with the emergence of the *new growth* theories (e.g. Barro, 2002:103-124). It will be argued, however, that the negotiated middle ground is still not adequate in dealing with the other important institutions, besides government, that determine the various developmental paths taken in developing countries, especially where market externalities are rife. Hence, a proposal will be put forth arguing for the definition and discussion of economic development to be placed at a mental and attitudinal level, which determines the economic practices of individuals within societies, as once pioneered by Hirschman (1960) and Sen (1982 and 1983).

In section two, the motivations for the rise of economic development discussions will be presented. Section three will discuss the definitions of economic development using the growth versus development perspectives. A historical overview economic growth and development models will be presented in section four. Section five will summarise and conclude.

2.2 WHY ECONOMIC DEVELOPMENT?

The wide divide in terms of human living standards between developed and developing countries has been the primary concern of the work of Development Economists after World War II (WW II) (Stern, 1991:122), the works of Lewis (1954), Rostow (1960), Hirschman (1960 and 1981), Sen (1982 and 1983), Todaro (1997), etc., being a few good examples. Concerning inequalities, Todaro (1997) points out that the minority of the world's citizens, who reside in developed nation-states and constitute only a quarter of the world's total population, live in relative security with regard to food supplies, access to shelter and health services, life expectancy, whilst the rest of the world's population, that is "more than 5.8 billion people ... have little or no shelter and an inadequate supply (of life's necessities). The majority has low or no basic literacy skills; are unemployed, and their "prospects for a better life are bleak or uncertain at best" (Todaro, 1997:3). In response to these challenges various economic development theorists have been - for the last sixty years - proposing a number of solutions, some of which have been in opposition. It is noteworthy that only some of these solutions have managed to achieve both academic and political prominence due to their perceived contributions to reported development achievements in some parts of the developing world, while others have in fact been criticised and even blamed for exacerbating the state of underdevelopment in other developing regions (Hirschman, 1960; Lal, 1983; Myrdal, 1957 in Potter *et al.*, 2004).

The debates about which ideas or economic models would be appropriate in tackling specific challenges of underdevelopment in various geographical contexts have ensured a refinement, in some cases a modification, of the early theories in response to criticisms from differing quarters. Hence, to outline an historical evolution of major classes of development theories alongside mitigating factors would be a useful undertaking in grasping the slippery meaning of economic development and the essence of the debates with important issues at stake (Sen, 1983:745-762; Todaro, 1997:7-19; Hirschman, 1960:1-28). A detailed enough outline would not only ensure a deeper understanding of the issues but would also guide decision making when choosing appropriate theoretical frameworks for discussions investigating agricultural contributions to economic development in a South African setting. However, before the outline is presented, the contentious conceptualisations and definitions of

economic development itself would need to be expanded upon. Sen (1983:754) highlighted one aspect of these definitional contentions when he postulated that, “perhaps the most important thematic deficiency of ... development economics is its (infatuation with) national products, aggregate income and total supply of particular goods (as important measures) rather than (a focus) on ‘entitlements’ of people and the ‘capabilities’ these entitlements generate”. The assertion illustrates that the definition of economic development should encompass an inquiry into citizens’ constitutional rights, which must promulgate and guarantee the citizens’ ‘entitlements’ to a level of acceptable living conditions.

2.3 ECONOMIC DEVELOPMENT: GROWTH VERSUS DEVELOPMENT

It would seem that in instances where a distinction between economic growth and development has been blurred or ignored, intentionally or otherwise, the struggle for economic development is lost. Hirschman (1960:1-22), Sen (1983:745-757), Todaro (1997:3-19), etc., presented an insightful discussion regarding the historical factors leading to the omission of this distinction. The *Marshall Plan*'s⁴ focus on, a) capital transfers to European economies destroyed by the war, and b) the promotion of free-market economies and western democratic values, especially in Asia and Africa at the height of the Cold War, was to a large degree successful in its economic revival of European economies and the fight against the proliferation of communism in the East. However, to then use the Marshall Plan (with its focus on capital accumulation) as *the* rational basis for formulating economic development models for application in third world countries, Hirschman (1960:1-28) argued, is irresponsible - if not completely futile. Such is the case because capital transfer models, such as Rostow's (1960) Stages of Growth Model and the Lewis Two Sector Model discussed in Fei and Ranis (1964) overlooked the vastly different institutional landscapes - operational in third world nations - in which the models were applied. In Europe for instance, besides the missing capital, other prerequisite factors thought to be suitable for the development process of rapid industrialisation could be found in abundance in the form of human

⁴ After the WW II economists in industrialized nations were suddenly faced with a growing interest for development in poor nations, but had no readily available tools to study these nations. “But they did have the recent experience of the Marshall Plan, under which massive amounts of U.S. financial and technical assistance enabled war torn countries of Europe to rebuild (themselves) in a matter of few years” (Todaro, 1997:71). The attraction to this historical information gave rise to the first group of development theories, which were growth oriented.

and cultural capital, industrial entrepreneurship, other public infrastructure, etc. However, these factors could not be found in most underdeveloped countries (Hirschman, 1960:1-7). The important point is that, economic development models, which focus on factors such as capital accumulation as necessary conditions for development come from an *economic growth orientation*, and they are only easily applicable to mature capitalist economies. On the other hand, an *economic development orientation* in theory and policy is required for underdeveloped nations. In noting the third world's economic performance expectations of *economic 'growth' model* exponents, Sen (1983:748) commented that, "these countries have been expected to perform like wind-up toys and 'lumber through' the various stages of development single-mindedly". The expectations are unreasonable.

Regarding standard economic measures of growth, unlike Hirschman (1960 and 1981), Sen (1983) was, however, more positive about the performances of 'growth' oriented models in developing countries. He concluded: "(t)raditional development economics has not been particularly unsuccessful in identifying the factors that lead to economic growth in developing countries. In the field of causation of growth, there is much life left in traditional analyses" (Sen, 1983:760). This is the case precisely because economic growth does not mean the same thing as economic development. In a somewhat emotive attempt to clarify the distinction, Brinkman (1995:1171) states:

Given the paradigmatic boundaries of mainstream economics, it is assumed that the quantitative statics of economic growth are synonymous with the processes of economic development. Problems and questions relevant to the dynamics of institutional adjustment, to the transformation of values, and to the impact of technology on cultural evolution, among others, are kept outside the boundaries of analysis and policy formulation.

Economic growth is easier and faster to achieve than economic development. In the third world growth is not an end in itself but only an aspect or a means to achieve the long-term objectives of actual development. Unfortunately, the growth-oriented economic models put too much emphasis on only one aspect of development whilst neglecting other long-term goals. The use of these models (e.g. those focussed on capital accumulation) *in explaining or predicting economic growth indicators* has, on the other hand, been a successful activity as illustrated by the World Development Report's (WDR) (1982) data presented and discussed by Sen (1983:748-754). Despite its date of collection, the data, presented in a modified state in table 2.1, is useful in

clarifying the arguments made so far. In the table, developing countries are grouped into two streams, the Low versus Middle-income countries, with related GNP per capita, GNP growth rates, percentages of domestic investments (i.e. capital accumulation) and the level of industrialisation – illustrated by the industry’s share of total GDP.

Table 2.1 The 1982 WDR economic growth indicators for selected Low and Middle income countries

Country	GNP per capita		1980 gross domestic investment (% of GDP)	1980 share of industry in GDP (%)
	1980 Value (\$)	1960 – 1980 growth (%)		
Low income				
Bangladesh	130	1.3	17	13
Ethiopia	140	1.4	10	16
Zaire	220	0.2	11	23
Mozambique	230	-0.1	10	16
India	240	1.4	23	26
Sri Lanka	270	2.4*	36	30
China	290	3.7*	31	47
Pakistan	300	2.8*	18	25
Sudan	410	-0.2	12	14
Middle income				
Ghana	420	-1.0	5	21
Thailand	670	4.7	27	29
Philippines	690	2.8	30	27
Morocco	900	2.5	21	32
Turkey	1 470	3.6	27	30
S. Korea	1 520	7.0*	31	41
Malaysia	1 620	4.3	29	37
Brazil	2 050	5.1	22	37
South Africa	2 300	2.3	29	53
Romania	2 340	8.6*	34	64
Yugoslavia	2 620	5.4*	35	43

(Adapted from Sen, 1983:749)

Firstly, the analysis of low-income nations suggests that a positive relationship between growth and domestic capital investments exists. For instance, of the top three nations in terms of GNP per capita growth between, i.e. China (3.7%), Pakistan (2.8%) and Sri Lanka (2.4), two of them (Sri Lanka and China) also have the highest capital accumulation. Even though Pakistan comes low in terms capital investments, it still features among the top half of the group. Again, a positive relationship is observed regarding growth and industrialisation. Secondly, when looking at the middle-income nations, the top three countries in growth terms are also the top performers in capital accumulation terms, i.e. Yugoslavia (35%), Romania (34%) and S. Korea (31%). These countries are also top performers in terms of industrialisation - if South Africa is ignored. The data suggests that indeed in 1982, capital accumulation had a positive relationship with both economic growth and levels of

industrialisation. It supported Sen's (1983) argument that growth-oriented models are useful in explaining *economic growth trends*. However, as previously stated and as reiterated by Brinkman (1995), economic growth *is not* economic development. It was earlier pointed out that the problem of underdevelopment has to do with issues of insecurity regarding food, shelter, employment, life expectancy, etc., which all contribute to a general lack of acceptable living human conditions affecting a majority of the world's population (Todaro, 1997). Moreover, additional data and arguments exist which illustrate that most of these issues, related to living standards, may not be resolved merely through capital acquisition associated with high economic growth rates; in fact sometimes the opposite is true where high growth may occur alongside a general decline in living standards. For instance, growth may be achieved without rising employment levels. This may also depend on the liquidity of foreign capital in developing countries. When such happens, it invalidates the propositions of Lewis' Two Sector Model of development (Fei and Ranis, 1964 and Todaro, 1997:79). Capital liquidity, a state that is often found in developing countries, easily lends itself to foreign capital flight (Hirschman, 1960:20). Sen (1983:754) provided data indicating that countries with high GNP per capita figures may have comparable, and sometimes worse, figures regarding life expectancy. For instance, Sri Lanka and China with GNP per capita figures of 270 and 290 U.S. dollars respectively (table 2.1), had life expectancy figures of 66 and 64 years respectively. These figures were also similar to those of Brazil and Mexico (63 and 65 years respectively) even though the latter had GNP per capita figures almost ten fold higher (i.e. over 2050 dollars each) than Sri Lanka and China. Hence, that suggests that economic growth indicators do not necessarily translate into acceptable human living conditions that indicate adequate levels of development. As such, the application of growth models should not be foolishly extended into explaining third world economic development challenges, trends or development policy formulations (Todaro, 1997:79).

Now that growth has been defined only as a short to medium-term goal of the long drawn-out process of development, it is appropriate to present the various complementary and competing definitions of economic development as suitable for developing countries. In somewhat vague terms, Todaro (1997:8) saw development as a process that would be concerned with economic, cultural, and political prerequisites for bringing about structural and institutional change that would benefit whole

societies. In fact, in such a view, he saw a larger role for government in policy coordination. The view is similar to one presented by Hirschman (1960:24-28), of externally induced and policy-synchronised mechanisms targeted at all noted critical factors for development. With regard to the prerequisite conditions of appropriate cultural and political institutions for development to take place, Sen (1983:757) declared that the answers lie “beyond the narrow limits of economics altogether”.

The course of economic development may be monitored through a number of measurable indicators or variables such as levels of GNP values (in growth-focussed perspectives), literacy, employment, life expectancy, etc. In this study, it is argued, however, that the basis for development should be located at a mental, attitudinal and emotional level. In this sense, experiences of positive and negative freedoms, for example, form important foundations for economic development. This postulation also seems to be closely related to the ideas and arguments put forth by Hirschman (1960 and 1981) and Sen (1983).

The ‘ideas of images of change as obstacles to change’, for instance, as discussed by Hirschman (1960:11-19) have to do with society’s mental picture of itself. The picture may refer to cultural values, morals and judgements about what behaviour is right or wrong, acceptable or unacceptable, etc., which would determine whether a society could sustain itself. The values or morals are institutionalised explicitly and/or implicitly in formal and/or informal ways. Individual behaviours that maintain or promote the culture’s values are rewarded through structured incentives. On the other hand, any behaviour perceived to be destructive of the ‘right’ image of society is punished, directly or indirectly. The conclusion from Hirschman (1960:11-19) was that these images can act either as obstacles or as conduits in allowing the process of economic development to take effect. He argued, for example, that: societies with a *group focussed image* of themselves, where members had a specific role to play, a place to occupy, and were resistant to any change that would modify established hierarchies, would find it a big challenge to embrace any idea of economic development. Such is the case because, as has been shown by Europe’s history of industrial development, promulgations of development can emerge from any industry or sector, with high returns accruing *initially* only to specific sectors. McCloskey (1985) also shares the idea that any sector could catalyse economic development in

her statement that even a ‘chewing gum’ industry can spur a very successful economic development cycle. In any case, the point is that, initially, development affects members of a society inequitably and therefore there is always a chance that societal hierarchies would be modified. If there were a possibility for such modification to occur, *group focussed* societies would block development from occurring. Hirschman (1960:13-14) believed that the resilient conditions of underdevelopment - in traditional (e.g. in rural communities of India’s 1950s) and in communist societies (e.g. the Russian intelligentsia of the 19th century) - stood as evidence of the deliberate blockages of development processes. The analysis, however, did not conclude that, at the other end of the spectrum, individualistic societies were more receptive to being successfully developed. Latin America’s competitive and individualistic values, which often led to civil conflicts, were cited as evidence for possible failures of extremely individualistic virtues (Hirschman, 1960:14). Such an analysis also reiterates the proposition that: the foundations of economic development should be located at mental, attitudinal and emotional levels, i.e. “beyond the narrow limits of economics”.

In line with the ‘mental location’ idea, Sen (1982:29-38 and 1983:754-762) proposed a theory of ‘entitlements’ in defining measures of economic development. His definition seems instrumental in nature. He proposed that an individual’s budget constraint (i.e. endowment of commodities) and the *possibility* to trade (i.e. economic and political freedom) determine his or her level of ‘entitlements’. With the right level of ‘entitlements’, individuals could acquire capabilities to obtain food or shelter, for instance. As Sen (1983:755) put it, “(t)he process of economic development can be seen as a process of expanding the capabilities of people”. It must be obvious that Sen’s (1982 and 1983) ideas of ‘entitlements’ are founded on a positive meaning of freedom, where acquiring ‘entitlements’ led to greater individual and hence societal freedoms. On the other hand, Hirschman’s (1960:11-19) discussion of cultural ‘images’ seems to have been based on negative meanings of liberty, in a sense that an individual would have to fight against societal pressures, i.e. structural penalties, to acquire the benefits of economic development. Sen’s (1982 and 1983) positive freedoms, it seems, are facilitated by an external environment of appropriate institutions (for instance, he cites India’s relatively democratic order or free press as good examples as opposed to China’s lack thereof). Hirschman’s (1960 and 1981)

negative freedoms, on the other hand are permitted or disallowed by the trajectories of resilient historical and cultural institutions. The main conclusion is that both definitions are institutional in nature. Whether the institutions are tangible or mental, formal or informal, explicit or implicit depends on the context of discussion. Ultimately, institutions as freedoms, identities of self in cultural hierarchies and capabilities from entitlements (legal or ethical) all have an important role in modifying the collective psyche of societies to block or nurture development initiatives. Hence, the argument that the basis for economic development should be located at a mental and emotional level is made plausible. A more detailed analysis of the meanings of these types of institutions is discussed in detail in the following chapter.

So far, the discussion has, a) presented a historical impetus for development economists to seriously engage the subject of development in the third world after WW II, b) argued and presented evidence for a distinction to be made between economic growth and development, where growth may only form part of the long term process of development, and c) proposed that the definition of economic development should revolve around institutions affecting the psyche or mentality of individuals and collectives. The definition, as argued, is closely related to Sen's (1982 and 1983) 'entitlements' and Hirschman's (1960 and 1981) 'images'. It should, however, be kept in mind that not all development economists would ascribe to such definitions, less likely would be the exponents of economic growth models (e.g. Rostow, 1960; Fei and Ranis, 1964; and more recently Kosempel, 2004; etc.). The point can be well illustrated by a brief historical overview of the debates among prominent development theories of the last 50 to 60 years.

2 4 DEVELOPMENT THEORIES AND THE DEBATES OF THE 20th CENTURY

As suggested in section 2, a majority of the early theories on economic growth and development surfaced in the fifties and early 1960s. The 1970s and early 1980s, Stern (1991:122) argues, was a lull period. That may be true with regard to theories founded on neoclassical economic frames, but it was certainly not the case regarding 'neo-Marxist-type' theories. For example, a movement of neo-colonial dependency theories (e.g. Myrdal, 1957; Baran, 1975; Griffin and Gurley, 1985:1089-1143),

which were highly critical of economic growth models based on neoclassical assumptions, received much attention and support, especially from third world economists and policy makers during the 1970s. In the 1980s, however, the economic neoclassical growth models resurfaced in what Todaro (1997:86) and Sen (1983:747) called the 'neo-classical counter-revolution' or 'the resurgence of neoclassical economics' respectively. The theory's central argument was that: resource misallocations, incorrect pricing, and too much government intervention (e.g. Lal, 1983:5-16) were the real reasons for the third world's underdevelopment - not western imperialism - as argued by neo-colonial dependency theorists. In any case, the 1990s witnessed a toning down of the conservative discourse when arguments were made by endogenous growth models about the important roles governments could play in reducing externalities and encouraging technological growth (Barro, 2002 and Helpman, 1992).

From the discussion, it is clear that development theories and models do not arise 'out of the blue'. They may be inspired by major events, for instance wars or newly found data. At a theoretical level, they may reflect a constructive and positive dialogue among committed scholars, but yet again at the extremes, they may flourish because of knee-jerk reactions from diabolically opposed perceptions, with little or no conversation taking place. Hence, it makes sense that different commentators use different narratives in their presentation of historical debates and theories in the field of economic development. Sen (1983:746) for instance, used what may be described as the requisite conditions for development to take place in mapping out the evolution of development theories. He claimed that the strategic themes that have been pursued since the beginning of the subject have been: a) industrialisation, b) rapid capital accumulation, c) mobilisation of surplus labour and d) government economic planning. Once again, his proposition seems instrumental and hence more objective compared to Hirschman's (1981) classification of 'mono-economics' versus mutual benefit claims. Hirschman (1981:3) simply pitted orthodox economics ideas against neo-Marxist theories. On the other hand, Todaro's (1997:70-95) historical presentation was primarily concerned with a presentation (or lack) of scientific data or newly found evidence, working against or sustaining any dominant theory at any point in time over the past 60 years. None of these perspectives holds the whole historical truth on its own, and hence the following discussion tries to incorporate

most of these views in presenting an overview of the theoretical debates from various models.

2.4.1 The early theories of development: a focus on economic growth

It has been mentioned that many of the early neoclassical economics models of the 1950s and 1960s focussed on some prerequisite condition that would be needed for economic growth to take place. Their focus mainly on economic growth, as discussed had limitations, since growth is only one of the many goals of development. However, as Sen (1983) also indicated, and as illustrated in section three, these theories have a lot of usefulness and hence their discussion is important. A focus on natural resources endowment as a necessary condition for development to take place was apparently popular until the late 1920s. When it became obvious that this condition was not enough the focus shifted to capital accumulation (Hirschman, 1960:1-2). As early as the 1950s the United Nations began advocating increases in managerial skills, which entailed more investments in human capital (UN, 1955 in Hirschman, 1960:2). A related discussion focusing on the relationship between investments in education and economic growth in the U.S. (post WW II) can be found in Becker *et al.* (1990:12-37). Their study concluded that the U.S.'s economic growth of the 1960s and 1970s was accelerated by massive investments in human capital (e.g. education). While emphases on specific conditions were shifting, with the exception of some Asian countries (e.g. South Korea), economic growth and development was not being achieved in many developing nations. The observation led Hirschman (1960:4) to criticise traditional development theories by commenting that “whenever any theory was propounded that considered a given value system a prerequisite of development, it could usually be effectively contradicted on empirical grounds; development had actually taken place somewhere without the benefit of the prerequisite”. He then proposed that perhaps the nature of development is so dynamic that policy cannot just focus on one particular factor but rather on their interactions.

Capital investment based models

One of the most important oriented models to emerge during the cold war period was Rostow's *Stages of Growth* model, which he claimed was based on sweeping

historical observations (Rostow, 1960:1). He proposed that there were five stages of development, and claimed that all advanced nations, at some point, had gone through these stages in their course of development. In that sense, the process is linear. The stages cannot be sidestepped in achieving sustainable economic development. Moreover, “(i)t is possible to identify all societies, in their economic dimensions, as lying within one of five categories” (Rostow, 1960:4). The stages were: a) the traditional society, b) the preconditions for take off, c) the take off, d) the drive to maturity, and e) the age of mass consumption. According to Rostow (1960:4), Britain was the first country to escape the traditional society stage in approximately 1780; most of the other European countries did this in the 1800s. Of interest to the discussion is the model’s stipulation of necessary conditions *for the take off stage*. For take-off to happen, foreign and domestic capital would have to be mobilised for technological growth and political power would have to be in the hands of a group that fully embraced modernisation and free trade. More specifically, “(d)uring the take-off stage, the rate of effective investment and savings may rise from, say, 5% of the national income to 10% or more” (Rostow, 1960:8). Although the specification of capital investment rates may seem crude or arbitrary, it should be kept in mind that the model was based on historical evidence from various regions in the world. Hence, it relied less on theory and more on empiricism.

The Harrod-Domar Growth Model took the levels of required capital investments for the take-off stage forward. It proposed that, an economy has to save a specific percentage of its GNP, first, for it to maintain its existing infrastructure, and second, to grow economically (Todaro, 1997:72). Domar (1957:6-7) argued that the limitation of Keynes’ model of aggregate national income was that investments only augmented capital stocks, their effects on income generation were not spelled out. Hence, he hypothesised that “the more productive investment is, that is, the less capital is required per unit output, the faster will growth take place”. This meant that *capital saving*, as opposed to labour saving, was more conducive for achieving economic growth in *developing* countries. Hence, the model’s primary conclusion was that the rate of growth as measured by GNP was determined by savings and capital-output ratios:

That is: $GNP = s/k$ (1)

Where:

s: savings ratio (savings as a proportion of national income)

k: capital ratio (total capital divided by national income)

In equation 1, without external intervention, growth is positively related to (s), which means that higher savings would lead to higher levels of economic growth. On the other hand, a higher capital ratio would lead to lower levels of growth. The implications are that: economies should save and invest at some specified level for them to grow at predictable rates (Todaro, 1997:73). This conclusion is similar to the one made by Rostow (1960:8) concerning the take-off stage of development. For example, according to both models, if a developing country had a capital-output (k) ratio of 3 (a figure characteristic of developing nations), it would need to save 15% of its GNP to grow at 5%. Hence, capital accumulation from domestic and foreign sources should be vigorously encouraged for the development of poor countries. However, and as argued by Hirschman (1960:1-21), a point also reiterated by Todaro (1997:74), capital formation might be a *necessary* condition for economic growth, but unfortunately, evidence has shown that it is not a *sufficient* one. Therefore, Rostow's Stages of Growth and the Harrod-Domar models did not provide complete explanations for resolving the challenges of economic growth, let alone the mystery of development. As previously discussed, according to Hirschman (1960), such solutions ignored the dynamic interactions between all the necessary conditions. For Sen (1983) they were narrowly focussed on growth, which is only one of the goals towards development. Todaro (1997:75) argued that the models ignored institutional factors such as "managerial competence, skilled labour, and the ability to plan and administer a wide assortment of developmental projects". They ignored institutional factors.

The Lewis Theory of Development

Another widely discussed theory of development (Nurkse, 1958; Fei and Ranis, 1964; Todaro, 1997; Kirkpatrick and Barrientos, 2004; etc.) is the Two Sector Model by Lewis (1954:139-191). Although the model has an economic growth orientation, it did not focus on one particular condition as the necessary one for development to take

place. It explained the transition process from an agricultural economy – with unlimited supplies of labour – into industrialisation by describing labour migrations from overpopulated rural settings to growing urban sectors (Lewis, 1954:40). According to the model, urban sectors would expand to absorb surplus rural labour because of locally invested profits, as these would ensure capital growth and a change in technology (Todaro, 1997:75-80). These sectors would expand to a point where the wage incentives, which encouraged labour migrations, no longer existed. In explaining labour migrations and urban sector growth, the model specified a number of assumptions pertaining to the rural as well as urban sectors. It assumed that, a) initially between eighty to ninety percent of the country's total population reside in rural areas, b) labour is the only input in the agricultural sector with a constant level of technology, and c) technology is allowed to vary in the urban sector (Todaro, 1997:75-80 and Fei and Ranis, 1964:10). A detailed technical explanation of this model, and its thesis on labour migrations, is presented Appendix 20. Its primary conclusion is that capital growth leads to a self-sustaining modernization process of the urban sector. The process continues until all surplus labour from the rural sector has been transferred to the modern sector. Additional labour migration beyond that point would occur at a cost to food outputs in the rural sector. In any case, once all surplus labour has been absorbed by the urban sector, the country's economy would have been industrialised and would be producing modern goods and services.

Obviously, if the real world worked precisely in the fashion described by Lewis (1954) – half a century ago – there would be fewer underdeveloped nations today. The biggest criticisms of the model revolved around what was termed 'its unrealistic assumptions'. Firstly, the assumption that labour-transfers and rising employment in the modern sector occur proportionally to increasing capital investments could never be accurate in cases where producers do not reinvest profits in labour intensive production methods (Todaro, 1997:79). If indeed they reinvested into the local economy, which as cautioned by Hirschman (1960:20-24) in his discussion of liquid capital preferences, was far from being true in developing countries. The fact that it makes sense for profit maximisers to reinvest their profits in technologically intensive productions where higher profits are likely, means that the economy would most probably experience economic growth without increasing employment levels. Such jobless growth does not fit the definition of development as discussed and proposed in

section two, for example, in terms of people's 'entitlements' or capabilities. Secondly, if capital were not to be reinvested into the local economy, then there would not even be local economic growth to begin with (Todaro, 1997:80). In the light of these counter arguments, Lewis' (1954) Two Sector Model was of limited use.

The model's core assumption of unlimited rural labour surplus, which existed alongside full employment in urban areas, also became highly questionable. Historical evidence showed that even though there may be high levels of unemployment in traditional sectors, the urban sectors of developing countries were also characterised by high unemployment rates. "(B)y and large, development economists today agree that the assumption of *urban* surplus labour is empirically more valid than Lewis' (1954) assumption of rural surplus labour" (Todaro, 1997:80). Finally, when describing the urban sector, many inferences and conclusions were drawn based on the assumption that the urban labour market was competitive. On the contrary, urban wages are often sticky in developing countries, including South Africa, where high levels of unionisation exist leading to various forms of market failure (Bocarro and Moll, 1997 and Fryer, 1998).

Even though not all traditional models of development economics have been discussed in this section, it is clear that most had serious limitations and were met with much theoretical and empirically based criticism from many angles, but especially from the neo-colonial dependence theorists like Myrdal (1957), Baran (1975) and others. The models were criticised for being too simplistic in their assumptions and approach, e.g. for ignoring important factors in development processes, such as the role of informal and formal institutions in economic transactions for growth and development. Hence, it should not be surprising that in the 1970s there was a decline of interest in the discussion of neoclassical models, logically this was accompanied by a rise in neo-Marxists theories.

2.4.2 The neo-Marxist theories: the need for government sovereignty

In the background of poor performances of traditional development theories, economists like Myrdal (1957 in Potter *et al.*, 2004:97) argued that capitalist oriented development would inevitably deepen regional and individual inequalities across and

within nations measured in terms of GNP per capita and social welfare. Although, as proposed by models of capital accumulation, through multiplier effects the fruits of economic growth would trickle down or spread over time, without interventions such trickle down effects would be limited to agricultural markets and the process of capital development would ultimately favour the northern-core nations (i.e. the developed countries) and a few individuals, i.e. elite groups, in underdeveloped countries. Myrdal (1957 in Potter *et al.*, 2004: 97) concluded that “given unrestrained free-market forces, these spread effects (of growth to the poor) would in no way match the backwash effects (of underdevelopment)”. Hence, the main thesis of neo-colonial dependence theorists revolved around government’s sovereignty in ensuring through independent planning that the benefits of economic growth had positive and equitable benefits to all citizens.

The neo-colonial dependence ideas advocated the rise of many radical models and planning for development. These included the ‘bottom-up approaches’, where development could be initiated and managed at a local level without the exploitative influences of external forces such as foreign governments and multinationals. The more extreme examples were the advocacy of revolutionary withdrawals of underdeveloped nations from global capitalist systems, as observed in the actions of some Latin American and African governments, e.g. Tanzania, in the late 1960s and early 1970s (Potter *et al.*, 2004:107).

However, these movements did not last long, as evidence emerged indicating that most of the countries that chose economic isolation began performing worse in terms of growth than those that chose the neoclassical economic models for their development. Some neo-colonial counter arguments were presented explaining that the observed economic failures were mostly due to poor government plans as opposed to the revolutionary ideas themselves. At a theoretical level, criticism was levelled at neo-Marxist ideas for failing to provide formal treatments in “explanations of how countries initiate and sustain development” (Todaro, 1997:82). Nevertheless, it seems that the bad experiences of experimental applications of many radical ideas throughout the 1970s only led to the rise of more conservative neoclassical models with a complete rejection of government roles in development planning. The

conservative ideas in the early 1980s advocated a completely free reign of the market throughout development processes.

2.4.3 The resurgence of neoclassical economics and the call for free market reign

In an emotive paper arguing against government intervention in economic policy, Lal (1983:5-16) called neo-colonial theories, including Keynesian ideas of development, a 'blind dogma'. He argued that development economics, referring to both classical and neo-colonial theories, had neglected useful insights from general micro-economic ideas of price mechanisms and their role of market regulation as well as welfare economic applications. Although Lal's (1983:8) arguments were specifically motivated by what he considered to be a neglect of the 'role of the price mechanism' in underdeveloped countries because of missing markets for many commodities in developing nations, he was part of a larger movement of 'counterrevolutionary' neoclassical economics, whose aims according to Todaro (1997:86) were to overhaul the 1970s' dominance of neo-colonial ideas in the discipline of development economics.

The counterrevolutionary movement reintroduced some of the neoclassical economic ideas such as public choice theories (Buchanan, 1957:114-123) and radical market oriented approaches to development debates. Most of those new ideas were supported by the World Bank and the International Monetary Fund (e.g. World Bank, 1993). "In more developed nations, this counterrevolution favoured supply side macro-economic policies, rational expectations theories, and the privatisation of public corporations. In developing countries (they) called for freer markets and the dismantling of public ownership, statist planning, and government regulation of economic activities" (Todaro, 1997:86). In line with Lal (1983), the counterrevolutionary theories argued that "underdevelopment results from poor resource allocation due to incorrect pricing policies and too much state intervention by overly active Third World governments". In validating their arguments the proponents pointed out as examples of the successes of free market economies, countries such as South Korea, Taiwan, Singapore, etc. Ironically, the neo-colonial dependence exponents also used the same countries as examples of successful cases of strong state intervention (Sen, 1983 and Todaro, 1997).

More specifically, Lal (1983:10-11) argued that the dominant ideology in development economics of the 1970s had rejected welfare economics, firstly, because of a general ignorance about the applicability of microeconomics in development, and secondly, because the assumptions made by welfare economic models on consumers' tastes and producers' technology were perceived to be irrelevant to the real world. The rejection on these grounds did not make sense because welfare economics, according to Lal (1983:10), provides "the grammar of arguments about policy" and hence those advocating external intervention would be better off using this grammar. On the other hand, he argued that 'second best' welfare economics came about because of developmental challenges, from which the state's role in the redistribution of resources and correction of market externalities were made clear.

Crudely put, welfare economics is primarily concerned with, a) the economy's optimal performance (i.e. the Production Possibility Frontier), b) the tension between efficiency and equity, and c) government instruments (e.g. taxes and subsidies) to improve (a) and (b) (Black *et al.*, 2005:58-68). Hence, if the neo-colonial theorists were really concerned about the extent and type of role governments could play in managing the process of development they would employ welfare economics as the basic framework of discussing the problem. If that had to happen, the price system as a mechanism for achieving "the so-called optimum conditions for production and exchange required for an efficient allocation of resources" would also find a place in the broader discussions (Lal, 1983:11).

Unfortunately, the counterrevolutionary models could not escape the old criticisms labelled against their predecessors. Stewart's (1983:282-292) direct attack on Lal (1983) is evidence of that. The perceptions remained that neoclassical assumptions were unrealistic and non-compatible with developing country markets. The facts that in these countries, a) competitive markets did not exist, b) consumers were not independent in their decision making processes, c) information remained limited and asymmetric, d) market externalities were wide spread, and e) many of the economies were neither formalised nor monetised, still posed a challenge to the applicability of most market oriented approaches including those presented in the 1980s (Todaro, 1997:89-90). Therefore, with the ideological boundaries sharply defined between pro

market and neo-Marxist theories, a new wave of theories proposing a middle ground emerged or began to catch the attention of many scholars in the late 1980s and early 1990s. These included the New Institutional Economics (NIE) (e.g. North, 1990; Rutherford, 2001 and others) and New Growth Theories such as Endogenous Theories of Growth by Barro (2002), Helpman (1992), etc. These movements promoted a broader discussion of explicit roles of governments and other external agencies, such as formal and informal institutions, in facilitating technological growth and market transactions for development respectively.

2.4.4 The new growth and institutional theories: negotiating the middle ground

The classical economic growth models, for example Lewis' Two Sector model, treated technology as an exogenous factor to economic growth in the urban sector. According to these models, economies should converge to some long-term equilibrium position as influenced only by capital-labour ratios. This meant that in the absence of external shocks or changes in technology all economies would converge to zero growth rates. Hence, "it is impossible to analyse the determinants of technological advance because it is completely independent of the decisions of economic agents. And the (theories) fail to explain large differences in residuals across countries with similar technologies". In short, the New Growth Theories presented a frame for analysing "the system governing the production process rather than forces outside that system" (Todaro, 1997:90-91). The theories analysed external factors, such as government investments and general planning, which contributed towards increases in technology for long-term economic growth rates.

Barro (2002:103-124) provides one such analysis of technological growth. Building on old growth models, which postulates that diverging paths exist between private and social returns to government expenditures, where private returns may be falling even though social gains may be increasing. Barro (2002:104) proposes that "because of familiar externalities associated with government expenditures and taxes, privately determined values of saving and economic growth may be sub-optimal". Using the Cobb-Douglas function and secondary cross-sectional data from various developing countries, he sought to illustrate that an increase in government expenditure, which led to high productive services (as opposed to consumption) would lead to higher

social (as opposed to private) returns measured by some representative household's utility function (Barro, 2002:122-124). For instance, optimal government spending on services, such as transportation, water, electric power, police services, education, would positively influence private investments and in turn have a positive impact on economic growth as a whole.

In general, many of the New Growth Theories focussed their attention on the roles played by positive "externalities in determining the rate of return on capital investments" (Todaro, 1997:92). Contrary to assumed diminishing returns to scale in production functions of old growth models (e.g. in figure 1), the growth theories argue that the positive externalities, from smart public spending, "generate external economies and productivity improvements that exceed private gains by an amount sufficient enough to offset diminishing returns" (Todaro, 1997:92).

Even though the New Growth Models have adopted a number of traditional ideas, unlike the counterrevolutionary theories of the 1980s, they argue for appropriate roles of government agencies in internalising negative and positive externalities for more optimal economic outputs. It is interesting that, even though Lal (1983) did not specifically discuss economic externalities as an impetus for creating a space for government intervention in economic development, his call for an inclusion of microeconomic ideas, e.g. welfare economics, seems to have been heeded by the New Growth models.

However, government is only one of many agencies that have a potential role to play in market transactions and development processes. Therefore, a more inclusive discussion has to involve the significant roles of all relevant institutions. This means that the biggest challenge facing development economists today should be an identification and understanding of institutions that matter in addition to an understanding of historical neoclassical economics and neo-Marxist models for economic development. An understanding of all kinds of institutions and their interactions with the market economy should help clarify the relationships between or the influences of, for instance, cultures, languages, ethical rules, liberties, legislation, on the processes of development. Ultimately, this would be an understanding, which locates any country's development process at the nation's collective psyche (i.e. the

dominant cultural systems and beliefs). In that regard, the following chapter presents an historical discussion and understanding of political, cultural and economic institutions as well as an analysis of their potential roles in developing the agricultural sector based on irrigation and water management. Moreover, the discussion of institutions, especially of the informal nature, is necessitated by the fact that the challenges of non-competitive markets, asymmetric information, externalities, as magnified in neo-Marxist criticisms, are more pronounced in developing countries.

2.5. CONCLUSION

In the light of vast inequalities in terms of GNP per capita and human living standards between developed and developing nations, the argument for economic development was put forward. For instance, it was reported that a third of the world's population have no basic literacy skills, have inadequate shelter and limited food supplies (Todaro, 1997:3).

In search of economic development, various competing definitions of what constitutes underdevelopment have been proposed over the past fifty to sixty years. Based on these definitions a number of economic models emerged on how to tackle the challenge of underdevelopment. In presenting these models it was illustrated that heated debates, often based on ideological beliefs, around the challenges were the main driving force behind many theoretical propositions over the years. The main ideological lines along which economic models were proposed were based on neoclassical economics and neo-Marxist views. The former had their main focus fixed on economic growth indicators such as GNP per capita, which they argued could be increased if certain conditions, such as capital stock accumulation, were met (e.g. Rostow, 1960). The neo-Marxist theories, on the other hand, argued that the implementation of neoclassical models in developing countries had only exacerbated the income inequalities between the core and periphery nations (Myrdal, 1957 in Potter *et al.*, 2004:97). However, it was shown that in the last ten to fifteen years, in light of criticisms from all quarters, development economic theorists have been negotiating a middle ground, where support for market oriented solutions were encouraged alongside government roles in policy coordination where market externalities were rife (Barro, 2002:103-124). The discussion concluded that the move

was a positive one, however, since government was not the only institution playing a significant role in the market for development, a broader discussion of various types of institutions was also needed. It was proposed that such a discussion would locate the process of development in its rightful place, i.e., at the collective psyche of individuals in different societies as once pioneered by Sen (1982 and 1983) and Hirschman (1960).

CHAPTER THREE – INSTITUTIONALISM: CRITIQUE AND POSSIBILITIES

3.1 INTRODUCTION

Ronald Coase (1998: 73) reflected on the direction the discipline of economics has taken since Adam Smith as having become the study of blood circulation without a body. “What this comes down to is that economists think of themselves as having a box of tools, but not the subject matter”. Institutionalists like Coase, charge that economics lacks an understanding or an interrogation of factor-coordination in a complex interrelated structure, which is the whole national economy. The criticism is not a recent one and has been articulated differently throughout the 20th century by economists from varying sub disciplines as illustrated in the discussion of *development economics* in chapter two. In the institutionalism doctrine, it was first articulated within what is now referred to as *old institutionalism*, whose founding fathers are thought to be Thorstein Veblen, Wesley Mitchell and John Commons (Rutherford, 2001 and Coase, 1998).

Rutherford (2001) contended that between the First and Second World Wars the *old institutionalists’* arguments held sway in the imagination of many economists and policy makers, especially in the American public sector. However, after the Second World War they lost most of their influence, as it became clear that their promise of reinventing the discipline of economics was not to be achieved soon. Veblen (1904), for instance, was not only a proponent of an analysis of the whole economy with its institutions, but also argued that the underpinnings of most neoclassical economic theories were flawed, because they were based on inaccurate rationalistic assumptions about the psychology of human behaviour. He, like many institutionalists of the time, believed that the new instinct and habit theories of the early 20th century in the discipline of psychology would provide a solid base for new economic thinking. However, it was later realised that that would not happen as more behaviourist theories in psychology emerged in the post Second World War period (Rutherford, 2001:183). Coase (1998:72) stated that men like Veblen were of “great intellectual stature, but were anti-theoretical, and without a theory to bind together their collection of facts, they had very little that they were able to pass on”. Hence, the fundamental

difference between the so-called *old* and *new institutionalism* lies in how each sub discipline has viewed the usefulness of neoclassical economic theories in application.

Ronald Coase himself is viewed as the founder of the *new institutionalism*. His discussions of transaction costs, for example in *The Nature of the Firm* (1937), proved to be foundational to the works of prominent institutionalists like North (1990; 1991 and 1992), Hodgson (1998 and 2006), etc., (Coase, 1998:72). “In contrast to the many earlier attempts to overturn or replace neoclassical theory the new institutional economics builds on, modifies and extends (the) theory to permit it to come to grips and deal with an entire range of issues heretofore beyond its ken” (North, 1992:3). Hence, even though many institutionalists remain opposed to the rationalist behavioural assumptions of neoclassical economics, they are however, tolerant to the use of some neoclassical models within a broader institutionalist framework. The nature of current arguments and perspectives put forth by various institutional economists are varied. Most spend considerable amounts of effort looking at issues of macro economic development through political institutions, using the neoclassical ideas of transaction costs, uncertainty, externalities, collective benefit, etc., (e.g. North, 1990; 1991 and 1992; Eggertson, 1990, Richter, 1998). Others, like McCloskey (1985, 1990a, 1990b), Evensky (2004), and Ramstad (1986), concern themselves with the lack of sensibleness in some usage of formalist and related methods, like econometric methods, in the general discourse and research endeavours of economics.

The chapter presents many of the discussions and criticisms of neoclassical economics by the *old* and *new institutionalism*, structured more in terms of the theoretical assumptions and methods as opposed to any chronological order. The discussions are presented, with examples, in a way that exposes the epistemological underpinnings and the broad framework for the thesis. The linkages to the primary research question and discussion of economic development issues, with a focus on irrigated agriculture, are also illustrated. Section two presents the progression of the institutionalist critique of neoclassical economic theories and methods in the 20th century. In section three, a logical structure of the debated meanings of institutions and their evolution are discussed alongside their meanings for economic development as a whole. In section four, the eclectic institutionalist methods of research are

explained alongside the limitations of positivism for application in social systems. The institutionalist framework for the thesis is argued for in section five. Section six concludes.

3.2. THE ARGUMENTS BY INSTITUTIONALISM IN 20TH CENTURY

3.2.1 The rationality assumption

In the late 18th and early 19th century, Veblen (1898 and 1904) was perhaps the greatest critic of classical economic thinking and business enterprise. The criticism against classical economics, which still resonates with current day institutionalists, was at the discipline's assumptions about rational human behaviour. In the light of poor business practice in America, he criticised business for failing to incorporate new technological innovations to enhance the public benefit due to an inappropriate legal, social and economic institutional framework (Veblen, 1904). The existing institutions were deemed bad for business. Hence, the failure of classical economists to analyse the role such institutions played on economic performance was equally bad. At the core of many of the early institutionalists' criticism of the discipline was "the hedonistic and rationalistic psychology implicit in marginal utility theory and (they) pointed to an alternative based on instinct and habit formation" (Rutherford, 2001:175). The concept of habit formation later became the universal thread in definitions of various kinds of business, social and cultural institutions (e.g. Diesing, 1971; North, 1992; Williamson, 2000, Rutherford, 2001 and Ramstad, 1986).

What institutionalists have argued against the rational behaviour of economic actors is that such an assumption is limited where high levels of uncertainty exist due to limited information about consumption and production possibilities in many sectors. In short, where markets are not perfect, as they often are, actors could not be expected to behave in a rational manner postulated in classical economics. The criticism is a serious one because many classical economic models, for instance the Coase theorem of zero transaction costs, are based on perfect information and markets as well as rationality assumptions (North, 1992:1-8). For these reasons Shubik (1975:545) and Demsetz (1969) in Rutherford (2001:186), "once called the General Equilibrium Theory a 'conceptual straightjacket'" and the classical economic approach to policy

appraisal a 'nirvana' approach, respectively. Even within an institutional framework, North (1990) argued that "the simple fact is that a dynamic theory of institutional change limited to strictly neoclassical constraints of individualistic, rational purposive activity would never allow us to explain most secular change ranging from the stubborn struggle of the Jews in antiquity" to the passage of the Social Security Act of 1935 in the US (Rutherford, 2001:188).

Within development economics, a similar criticism of neoclassical economics has been presented when advocating an inclusion of an institutional analysis in developing countries, especially by the neo colonial camp as discussed in chapter two. More specific and within an institutional framework what that entails, according to North (1992:1-8), is that economic development in the developing world should be analysed institutionally because of greater than zero transaction costs, uncertainties in transactions, externalities, etc., for the maximisation of public benefit. To a degree, the proposal resonates with Veblen's (1904) criticism of inefficiencies of American businesses in the early 1900s. Nonetheless, the institutionalist criticism of classical economics has extended beyond the rationalist realm.

3.2.2 Formalism in economics

Perhaps the most ironical set of criticisms of narrowly applying formal or mathematical methods of analysis in neoclassical economics has come from McCloskey (1985; 1990a and 1990b). In addition, Weintraub (2006) has had a direct response to McCloskey's (1990a) discussion on *Formalism in the Social Sciences; Rhetorically Speaking*. Beyond the criticism of misunderstanding and misapplication of the significance test (t-test) in econometrics, McCloskey (1985) further argues that economists have adopted the use of *existence theorems* and their proofs without much rhetorical interrogation for useful application in real life economic problems (McCloskey, 1990a:12-19):

From everywhere outside of economics except the Department of Mathematics the proofs of existence will seem strange. They do not claim to show that an actual existing economy is in equilibrium, or that the equilibrium of an existing economy is desirable...They show that certain equations describing a certain blackboard economy have a solution, but they do not give the solution to the blackboard problem, much less to an extant economy.

Even in Weintraub's (2006) argument that only through axiomatisation⁵ (i.e. formalisation) can a vigorous interrogation of economic problems be made possible it should, however, be asserted that McCloskey (1990b:1127-1130) is not against the use of mathematics in economics⁶. She only discusses and demonstrates its misuse in social science, because unlike physics, economics investigates phenomenon and problems within social systems. The chain of mathematical arguments in physics are corroborated and moved forward through experimental observation, where such observation is limited in social systems. Hence, the question that has always been a focus of many institutionalist arguments (e.g. Wilber and Harrison, 1978; Ramstad, 1986 and Evensky, 2004) is that of whether formal methods are indeed appropriate for the discipline of economics⁷ and if so to what extent are they?

Evensky (2004) contends that economics as a discipline has been faced with a rising level of criticism, partly, because of its relatively low rates of successfully predicting future economic events. Many argue that the majority of these inaccurate predictions stem from the inappropriate adoption of formalist methods (Wilber and Harrison, 1978; Ramstad, 1986). The misuse of formal or scientific methods in such systems has not only led to methodological discrepancies, but as argued by Evensky (2004:197-211), has led to the discipline of economics being excluded from the social science scholarly body of inquiry. In addition, McCloskey (1990b) reckons that the misuse of statistic rhetoric by many economists has not only led to presentations of non-substantive arguments or inaccurate predictions, but has also ensured a decrease in economic audience. This has further isolated the discipline from other forms of rhetoric inquiry.

At this point it seems that the majority of neoclassical economists, who in development economics, are criticised for favouring free market oriented paths - with unrealistic assumptions - to development (e.g. Lewis, 1954; Nurkse, 1958; Fei and Ranis, 1964, etc.) are further criticised for misapplying formalist methods in social

⁵ In loose terms this may be a postulation of relationships among chosen economic variables, with certain assumptions made, for a theoretical and mathematical modeling of the general economy.

⁶ "I don't object to (the use of mathematics) at all. It's that the wrong kind of math is being used, that of the department of Mathematics instead of the Department of Physics" (McCloskey, 2008).

⁷ A social science discipline.

systems (e.g. the Harrod-Domar Growth Model, The Lewis Two-Sector Model, etc). Such is the case because, the postulated free markets, which are devoid of institutional burdens or transaction costs⁸, due to assumptions of rational actors and perfect information flows (North, 1992:1-8) are perfectly suited for mathematical treatments or axiomatisation. As demonstrated in the review of debates in development economics literature, the high generation rate of free market economic models in the 20th century has not been matched by successful economic development trends, especially in the developing world. However, the same conclusion holds true for neo colonial or radical arguments, whose only focus is narrowly based on political issues.

3.3 INSTITUTIONS: WHAT DO THEY MEAN TO SOCIETY, ECONOMICS AND DEVELOPMENT?

At the turn of the 19th and early 20th century Veblen (1898 and 1904) and later Mitchell (1923) and Commons (1924 in Rutherford, 2001:173-194) wrote mainly about institutions of a formal kind. Veblen (1904) was critical of business institutions, and Mitchell (1924) influenced by such criticism attempted to illustrate how institutions in money transactions could be better understood and enhanced using empirical data, as opposed through what he thought were limited theoretical postulations of neoclassical economics. While Veblen (1898 and 1904) attacked rationalist assumptions of neoclassical economics from a psychological perspective, Commons (1924 and 1934) approached the subject matter from a legal perspective (Rutherford, 2001). Hayek (1945:519-530) on the other hand, who was not particularly opposed to outcomes of a free market system, in his understanding of the workings of the market economy emphasised the accumulation of local knowledge over time to be reflected in community practice. During this time, clear distinctions between formal versus informal institutions and rule-governed practices versus organisations had not been explicitly made. These distinctions were pointedly discussed in depth at a later stage, for example by Quiggin (1988) whose focus on informal institutions was the collective behaviour of traditional societies in the use of public resources. The present discourse on institutionalism, however, seems a lot more concerned for such distinctions to be made. In the works of North (1990, 1991

⁸ North (1992) argues that the presence of transaction costs is a reflection of the fact that costs are always greater than zero in real life economic activity, hence institutions with the lowest costs should be favoured by societies with preference for high efficiency.

and 1992), Eicher (1999), Hodgson (1998 and 2006), Williamson (2000), etc., the discussion of the meanings of institutions is predominated by differences between intangible rules and practice, like property rights, versus tangible organisations as well as nuances between formal versus unwritten and informal cultural conventions. Hence, even though or precisely because, more attention has been given to the subject, the definitions of institutions remain highly contestable. This also means that different ideological camps exist within institutional economics. Various opposing and sometimes complementary propositions, in the way of understanding what institutions are and how they work economically have been presented in recent literature.

3.3.1 Defining institutions

Veblen in Paarlberg (1993:823) basically defined institutions as “settled habits of thought common to the generality of men” and Commons (1934) defined the sub discipline of institutional economics “as collective action controlling, liberating, and expanding human action”. According to North (1990 in Eicher, 1999:3-4), however, a distinction should be made between institutions and organisations where he defines institutions as “the rules (the legal system, financial regulations, and property rights) that nurture, protect, and govern the operation of a market economy”. He emphasises the point that these are abstract concepts as opposed to tangible organisations, which may refer “to universities, cooperatives ... that carry out specific missions in society” (Eicher, 1999:3). Such institutions form because of incomplete and asymmetrical information in market transactions. “Human beings, in consequence, impose constraints on human interaction in order to structure exchange” (North, 1992:1), but this does not guarantee that a resultant exchange would be efficient, because to begin with the very presence of institutions signals the fact that transaction costs are positive. In any case, even though various institutionalists do make the distinction between the abstract social rules and the tangible organisations whose role is usually that of enforcing the rules, some still refer to organisations as institutions, although defined as institutions of a higher level. In making the distinction between the two, North (1990:3-6) in Hodgson (2006:9) writes that:

Institutions are the rules of the game in society, more formally, are the humanly devised constraints (with costs) that shape human interaction. In consequence,

they structure incentives in human exchange, whether political, social, or economic. Conceptually, what must be clearly differentiated are the rules from the players. The purpose of the rules is to define the way the game is played. Modelling strategies and skills of the team as it develops is a separate process from modelling the creation, evolution, and consequences of the rules⁹.

From the extract it is clear that according to North (1990) institutions (the rules) are not organisations (the team), however, Hodgson (2006:9-13) argues that this is not the case, saying that North (1990) “simply establishes his own primary interest in economic systems rather than the internal functioning of individual organisations”. Such is the case because Hodgson (2006:10) himself sees organisations as a special type of institutions. He argues that organisations are actors only at a national economy level of analysis, but it would be foolish to define them as actors for all analytical purposes, because they too have internal conflicts.

In any case Williamson (2000:595-613), draws a distinction between formal and informal rule against institutions and organisations which is close to North’s (1990) when presenting a hierarchy of society’s institutions with four levels, namely:

- a) the embedded norms, customs, mores, and traditions. These are not directly observable, but are transferable from one generation to the next, and form the foundations for all other institutions in society as well as the base for the rational behaviour of individual actors,
- b) the formal rules of social organisations, including “constitutions, laws, property rights, etc.” as described by North (1991:97). These rules open up the opportunity to first order political or constitutional behaviour. That is getting the formal rules of the game right. The game refers to political and economic transactions between individuals and groups.
- c) the play of the game. This involves “second order economising, getting the governance structures (e.g. contract) right”, and
- d) the level at which resource allocation is determined. This means getting the marginal condition right.

⁹ My emphasis, the concept of modelling for different types of investigation using Saleth’s (2004) topography of institutional evolution will be explored further in the coming sections.

In Williamson's (2000) hierarchy of institutions, an historical evolution of unwritten and often tentative rules towards established, universal and explicitly stated regulations is traceable. Such an evolution, Evensky (2004:197-211) argues depicts the invisible boundary between the socio-political sphere of inquiry from the economic one, even though such a boundary is actually superficial as it often limits the application of economic investigation into real life issues (McCloskey, 1990a).

3.3.2 The evolution of institutions

Institutions are not everlasting. They change, however at a slow pace and in a specific direction, and that makes them path dependent. Over time, not only have institutions been defined differently, but also the forces behind their evolution have been seen differently. It also seems that various ideologically driven economists have employed different models or theories for specific outcomes. Various theories in institutional economics have been proposed for analysing change at various levels of the evolutionary process. Saleth (2004:6-7) presents the topography of these theories from perspectives that are appropriate for each level of the evolution. She groups the main theories into three categories namely:

- a) **market based theories**, which emphasize institutional selection through market **competition** (e.g. transaction cost (North, 1992));
- b) **evolutionary theories**, which explain the emergence of social conventions (e.g. Demsetz, 1967, Quiggin, 1988:1071-1087, and Sethi and Somanathan, 1996:766-787); and
- c) **bargaining theories**, which explain institutions in terms of asymmetries of powers (e.g. Commons, 1924 and Ostrom, 1990)¹⁰.

Because institutions, especially informal ones, are varied and based on "different perceptions of the world and how it works" (North 1992:2), like accumulative knowledge when perceptions of the surrounding environment changes they too evolve. In this thesis, the goal to limit *transaction costs* is what drives the gradual selection of more suitable institutions. Hence, scarce resources and competition is at the core of such institutional change. "The concept of transaction costs was implicit in

¹⁰ See Appendix 18 for additional discussions of Demsetz (1967), Quiggin (1988), Ostrom (1990), etc.

some of the older institutionalist literature, and its more recent explicit development has generated an explosive growth of literature on organisations, contracts, and the role of institutions in *economic development*” (Rutherford, 2001:187). However, an opposing force to such change exists in the form of *path dependency*. When bargaining power is unevenly distributed among economic actors, existing institutions could be maintained to serve the interests of powerful sectors, even when such institutions are not efficient (North, 1992:3). Such an argument reaffirms Veblen’s (1904) critique of the business enterprise.

Regarding economic development, North (1992) postulates that one of the reasons why economic growth remains hard to achieve in developing countries is because institutional change is difficult where vested interests of the powerful polity lie in the maintenance of prevalent institutional frameworks. In such contexts information is also unevenly distributed. The technological innovations that were observed by Veblen (1904) as not being incorporated by business for improving public interests, North (1992) argued could have made it easier for the powerful sectors to cheat in these environments using a *game theoretic* framework. Such is the case because in game theory, cooperative solutions would be achievable where, a) the game is played repeatedly, b) information on past actions of players is readily available, and c) a small number of players are involved. When prevailing institutions do not ensure that an introduction of new technologies promotes these conditions, exploitative relationships and corruption are entrenched. Hence, the incompatibility of institutions with newly available technologies could actually foster underdevelopment, as economies are open to global market transactions of many players, unstable relationships, and uncertainties.

Buchanan’s (1991) discussion of constitutional economics offers a framework for an analysis of institutional change that explores collective behaviour in the realm of politics (i.e. public choice theory). The interrogation could be located at the evolutionary phase of Saleth’s (2004) topography. Such behaviour is believed to lead to a creation of social contracts (i.e. social norms) as well as contextualised rational individual behaviour, which is a form of constrained rational choice in the realm of neoclassical economics. In the development of these political contracts, Buchanan (1991) believed there is a greater economic incentive for individuals to set aside their

selfish interests for the establishment of fair rules for justice and equity. Such a foundation needs to be laid out prior to the commencement of economic bargaining, i.e. Saleth's (2004) third evolutionary phase, which is based on narrow, selfish interests. Buchanan's (1991) beliefs as articulated by Evensky (2004:199) are thought to have existed in Adam Smith's discussion of moral philosophy. "Smith's purpose was to explain the virtues and the prerequisites of the 'liberal plan of equality, liberty and justice'" (Smith, 1976:664 in Evensky, 2004:205) and to describe how humankind has evolved towards this ideal prospect. Accordingly, in Smith's discussion people are not *homo economicus*, but *social* and sovereign at the same time. Such is an institutional view of the environment in which economic actors bargain and transact.

Of course, in the real world the formulated institutions need not be fair and just, the same way that North's (1992) institutions were sometimes efficient or unsuitable for economic development. Such is the case because the political process of setting up the long-term social contracts (an institutional polity) is in itself not necessarily immune from rent seeking and manipulation from powerful vested interests. Nonetheless, when individual benefits to create the appropriate type of social contracts (institutional framework) are explicitly greater than the costs they would be created. "There is (always) a justification for both individualised and collective efforts to promulgate, maintain, and transmit ... ethics throughout culture (and) intergenerationally" (Buchanan 1991: 177). Hence, social institutions (informal to formal) have always formed the parameters within which individual rational choice could be realised. Whether the institutions established in this manner would allow economic development would depend on whether they are economically efficient (North, 1992) and promote public interest (Veblen, 1904).

The next phase of *bargaining* in the topography of institutional evolution by Saleth (2004) is well illustrated in Ostrom's (1990:1-21) discussion of transferable property rights. The presumption for fair outcomes is that such rights form a socially just contract. The discussion illustrates their enforcement using a game theoretic framework. Ostrom's (1990) definition of the rights shows a clear boundary created between those who can and cannot be part of the bargaining process in established communities with identifiable members. The illustration also reiterates Adam

Smith's (1976: 664) assertions (in Evensky, 2004:205) of *socially just*, but also *sovereign* self-interested actors in economic transactions. In the bargaining process, the individually perceived costs and benefits are what drive the behaviour of utility maximising actors. Once again, cooperative outcomes or the efficiency and sustainability associated with such an institutional framework are dependent on bargaining power and informational distributions similar to those discussed by North (1992). Where information and power are evenly distributed among actors the institutional framework would be well positioned to provide efficient outcomes, otherwise the opposite is true.

3.4 ECONOMIC METHODS: POSITIVISM AND INSTITUTIONALISM

Historically, the criticism levelled against the body of neoclassical economics by institutionalists has mainly been threefold. In the early stages economics was criticised for its neglect of incorporating institutions¹¹ in investigations of economic transactions and for an over reliance on theoretical postulations with unrealistic assumptions against limited empirical testing (e.g. Veblen, 1904; Paarlberg, 1993; Evensky, 2004; etc.). At present, it would seem that the criticism is mainly focussed on the misuse of statistical and formal methods (e.g. McCloskey, 1985, 1990a, 1990b; Paarlberg, 1993; and Williamson, 2000). On the other hand, the reactionary criticism that has been levelled against institutionalism has been placed at its blind use and analysis of empirical data, without a well-developed body of theory and tools for a vigorous interrogation (e.g. Hodgson, 1998 and Weintraub, 2006). Institutionalists, however, it seems have been always been aware of their own limitations, especially with regard to a lack of a unifying theory of institutions (Oosthuizen *et al.*, 2005:75). For instance, Williamson (2000:595 in Evensky, 2004:198) opened his discussion of the *new institutional economics* (NIE) with a confession, an assertion, and a recommendation. What he confessed was that economists have remained ignorant about institutions. The assertion was that even though the past quarter century had witnessed enormous progress in the study of institutions, the discipline, however, still awaited a unified theory accepting of pluralism, where such a theory would contribute to economics' reintegration with other social sciences. Hence, a presentation and

¹¹ This entails historical documentations of rules, practices, etc., which have resulted in a present institutional framework within a chosen system.

discussion of the various alternative investigative methods proposed by some institutionalists would enhance an understanding of the debates, contributions and gaps in such knowledge.

McCloskey (1990b:1124) provides a compelling reason for economics to tell a well-informed story, which means to tell it accurately. “Most of what economists do is tell stories about the recent past (i.e. history), explaining why the Corn Belt went bankrupt in the early 1980s or why agricultural policy favours bigger farmers (in America for instance). To do so sensibly, they need to know what they are talking about” (McCloskey, 1990b:1124). Essentially this also entails a good knowledge, understanding and description of historical events. Hence, most of what institutionalist methods are concerned with is story telling, a historical narrative. Because “groups, power, change, multidisciplinary subject matter, and qualitative considerations are the substance of institutional economics” (Paarlberg, 1993:823), the methods of institutional economics rely on case-study documentation for providing explanations of the past, not so much predictions, of economic events as will be illustrated in this section. In fact, it could be argued that the biggest ideologically motivated difference between institutional and neoclassical economics methods of investigation lies in the *explanation-prediction* (history-future) dichotomy.

Wilber and Harrison (1978:61-89) analyse and compare some of the models of explanation and prediction underlying both institutionalist and neoclassical economics methods respectively. In their discussion, what resonates well with a social science discourse is that institutionalist methods *are said to be discovered*, i.e. not prescribed as they argue is normally the case with methods of neoclassical economics. The institutionalist methods are not prescribed from some reservoir of mostly unrealistic theoretical postulations for which neoclassical economics stands accused. Standard economics uses formal methods, which include logical positivism and *a priori* rationalism for understanding, interpreting and explaining the subject matter of social systems. The *axiom and proof* is one example of such formal methods. The fallibility of such a method as Marshall (1920:773 cited in McCloskey, 1990a) cautioned is that “the function then of analysis and deduction in economics is not to forge a few long chains of reasoning (in a mathematical language), but to forge rightly many short

chains and single connecting links”. In positivist methodology, the subject matter may change, but not the method of investigation. In contrast, institutionalist methods such as the holistic documentation of case studies, the recurrent event patterns or themes are discovered from the subject matter for description and then explanation before theories can be presented. As Wilber and Harrison (1978:61-62) put it “holism, including pattern models and storytelling, expresses the belief that a *change in subject matter requires a change in method*”. Institutional methods are premised on this ideological belief. On the other hand, “formalism is a method that consists of a formal system of logical relationships abstracted from any empirical content it might have in the real world. For example the theory of the firm ... is characterised by the use of mathematics (at least implicitly) and by the development of an axiomatic, *deductive structure*” (Wilber and Harrison, 1978:62). In such methods, models are constructed from a set of postulates and definitions, deductively specifying the likely relationships, which may exist among them. Sometimes already existing models are *imported* for assistance in investigations, using new empirical evidence for the validation of old and new theories. In constructing a new model, the postulates are put forth and thereafter an inherent dynamic system of logical arguments is deduced. “Rules of interpretation do make a truth claim; they claim that the structure of relations in a calculus is the same structure that exists in some part or aspect of the empirical evidence” (Diesing, 1971 in Wilber and Harrison, 1978: 63). Law-like statements could then be deduced, for example: that a firm will buy inputs, produce and sell to a point where marginal costs equal marginal revenues. However, such statements are often hard to falsify using empirical data, because social systems are dynamic, and always require that the *ceteris paribus* qualifier be invoked. As noted by Hodgson (1998:168), such an approach driven by the objective to discover law-like statements or theories is premised on the belief that social systems are similar to those of a physical kind as investigated in disciplines like physics. However, institutionalists who pursue “specific and *historically*¹² located approaches to analyses” hold the belief that social systems behave more like evolutionary biological systems, where patterns may emerge explaining the behaviour of organisms in a specific environment.

¹² My emphasis.

The biological view hence may explain why the dynamism of social systems has required neoclassical economists to invoke the *ceteris paribus* qualifiers if they were to solely rely on the internal logic (pure reasoning) of theoretical postulations. Such was the case until the development of econometrics in the 1950s. Wilber and Harrison (1978:63) argue that economists like Veblen and Commons dissented from positivist neoclassical economic methods because they held an institutionalist view of an economic system. Formal models also suited a neoclassical economics doctrine that relied on rationalistic behaviour of atomised actors, which paid less emphasis on custom, norms, ethics, habit formation, etc.

Nevertheless, economists like Paul Samuelson and Friedman (Wilber and Harrison, 1978:64) argue in defence of the positivist approach by showing that “empirically falsifiable propositions could be derived from formal models”, from general laws and specified conditions hypotheses could be stated and subjected to empirical testing, and from test results, hypotheses could be rejected or accepted as true. Moreover, the success rates at predicting economic events would be justification for the use of such methods. By the way of responding, institutionalists (especially) with regard to the theory of the firm argued that, “standard assumptions concerning the behaviour of entrepreneurs were (actually) contradicted by empirical evidence and (hence mostly proven to be) unrealistic” (Wilber and Harrison, 1978:66-67). Their verdict as already indicated was that “(s)uccessful predictions of economic phenomenon (using positivist methods) had been consistently lacking over the years”.

At a philosophical level, a) the efficacy of applying logical positivist methods to the study of human behaviour was inappropriate, and b) the failure of neoclassical economics to reject its core body of assumptions despite numerous instances of repeated prediction failures was absurd, if not driven by ideology (Fryer, 2004) or self interest on the part of researchers (McCloskey, 1990a). These speculations are also given weight in the face of McCloskey’s (1990a:12) contention that a majority of mathematical equations (on blackboards) of most economists have little to do with providing practical solutions of real economic challenges. It seems that the final verdict for the discipline as a whole is a sad one. As argued by Wilber and Harrison (1978:69), it is not taken too seriously as a scientific explanation of ‘what is’. “Rather, (too much) attention is focused on the development of a set of ‘engineering tools’ –

linear programming, Input – Output Analysis (IOA), Cost-Benefit Analysis (CBA), and so on”. This focus could be criticised for having less to do with the core business of economics; of fully understanding the subject matter (a dynamic human system) from which various stories (historical narratives) could then be told, by isolating and describing recurring themes for an explanation of economic events of the past.

In developing a method of investigation that is more appropriate for the subject matter, institutionalists build on psychological, anthropological, historical, sociological and other research in explaining context specific human behaviour (Hodgson, 1998:169). The research enables them to be “engaged in a systematic form of storytelling that Abraham Kaplan calls a ‘pattern model’” (Wilber and Harrison, 1978:71). In developing such models, qualitative case study methods are used, for instance as discussed by Oosthuizen *et al.* (2005:71-76). The models are aimed at identifying relational patterns among parts that form a whole system (e.g. relations among individuals in a community). The changes in the relations define changes in societal hierarchies and hence potential redistributions of economic power and resources. A changing institutional framework of social contracts at a political level would enable changing patterns of economic distribution to form at local and individual levels. In this sense, economics is embedded in an evolving social structure¹³ (Wells in Oosthuizen *et al.*, 2005:71-76). Hence, the models aimed at explaining a local economic event must define a prevalent institutional framework, the relations among parts that make up the whole systems and the conflicting forces, which encourage or prevent any institutional change. A new technological innovation or vested interests of corrupt sectors could form such forces (North, 1992).

Following Saleth’s (2004) topography of institutional evolution, the models should historically describe;

- a) the slowly evolving *status quo* - made up of cultural norms, ethics, traditions, etc., at a local level,

¹³ Hodgson (2006:3), however, does not fully agree with this definition, because for him “social structures include sets of relations that may not be codified in discourse, such as demographic structures in ... human societies before any understanding of demography”.

- b) the political processes of creating new social contracts by consensus (i.e. as informed by public choice theories), which often lead to an establishment of formal institutions such as constitutions or property rights, and
- c) the ensuing competition of choices among self interested individuals (as may be analysed through *game theory*).

At all three levels the distributions of information and power, the strategic behaviours of actors and external forces from the surrounding environment, should be identified and their effects explained as drivers of constant change. Such information would provide the most useful backdrop for understanding historical and current economic events as well as their narration. When neoclassical economists have attempted to consider any role of institutions in their discussions or arguments, *albeit* without the ideological inclinations or rigour of institutionalism, their tendencies have been to focus more on formal institutions, to the neglect of informal ones, such as cultural norms and traditional practices.

However, because institutionalists acknowledge the important roles that are played by informal institutions in human relations, what in neoclassical economics may be considered as irrational behaviour is often understood within context in institutional analyses and therefore factored into systematic models of storytelling. Such inclusions also make it possible for the discipline of economics as a whole to be reintegrated into the discourse of social sciences and a more pluralistic inquiry. It is, for instance, more possible to investigate and discuss issues such as “technology, power, the state of the working class, instrumentalism, pragmatism, conflict and resolution, social forces, resource distribution, social evolution, philosophical-ethical relativism, or absolutism, cultural progress, contextualism, economic organisation and control ... deliberate social control and/or industrialisation, humanism, and *inter alia* economic planning, etc.” (Samuels in Wilber and Harrison, 1978:72), within such a framework. However, and possibly because of the breadth of such topics, institutionalism as a sub-discipline of economics has not developed an elaborate corpus of analytical tools (similar to the theory of the firm or marginal utility theory in microeconomics). What has been developed is a method without rigid or prescriptive guidelines that often lead to a dangerous determinism (Merriam, 1988 in Oosthuizen *et al.*, 2005:71-72). A mode of investigation, rather than a box of prescriptive tools, informs the institutionalist

method. Such a mode, Wilber and Harrison (1978:73) argue, is holistic, systematic and evolutionary.

The holistic pattern model, as a term, is borrowed from the physical science theories of a *non-Euclidean*, *non-Newtonian* and *non-mechanistic* nature (e.g. Darwin's theory of evolution). Hodgson (1998:168) contends that this mode of investigation also informed the core of Veblen's economic inquiries. In this mode, it is probabilities that characterise the relativist explanations and/or propositions. Even though the parts of a system may be studied in separation, they are always presumed to be related somehow at a holistic or systematic level. Hence, their interrelatedness makes them useful in explaining (past and current) economic events. For instance, an event is explained by identifying its relational position in the pattern of change. The explanation of a cumulative causation, rather than of prediction, is one that is given the highest priority. The method "strives for a depth of understanding as an end in itself, not as an attempt to predict what may happen in the future, or to generalise (through some general law) to a universe" (Oosthuizen *et al.*, 2005:72).

The participant-observer¹⁴ method illustrates best the construction and application of a holistic pattern model of explanation in the social sciences (e.g. in ethnographic research). The subject matter under observation needs to be a unified system. Moreover, it is not the magnitude but the wholeness of the system that makes it. The system could be as small as a particular household or some organisation, or as big as a national or global economy (Wilber and Harrison, 1978). In constructing pattern models, the observer needs to be socialised into the system s/he is describing. The norms and traditions of the system need to be impressed upon him or her, for example the important economic ceremonies, conspicuous consumption, dowry payment rituals, and the observations of social status in various contexts. Procedurally, the observer divides the systems into parts and sub-parts looking out for themes that are most *recurrent* as well as *connected* to others already identified. The procedure is illustrated in Figure 3.1. Such themes would then highlight and validate the system's unity and uniqueness. From the historical facts that gradually allow self-narration, the

¹⁴ In the method the researcher is embedded in the subject matter that s/he is investigating. For instance, s/he observes the same local practices in which s/he is also a participant (i.e. ethnographic research).

researcher would construct preliminary descriptions and interpretations of the relations of the parts to one another and to the whole system (Ramstad, 1986; Wilber and Harrison, 1978). In this manner, the current institutional framework as inherited from the past, the processes of negotiating future social contracts and the economic outcomes from strategic actions of individual players are identified, understood and described¹⁵. In Figure 3.1, A, B and C represent the parts of a unique system. t1, t2 and t3 represent recurrent themes such as ritual economic practices (e.g. dowry) of the parts (actors). The lines connecting the parts represent the relations among parts as reflected in observed practices. It is through the relations that the parts form a unique and a unified system.

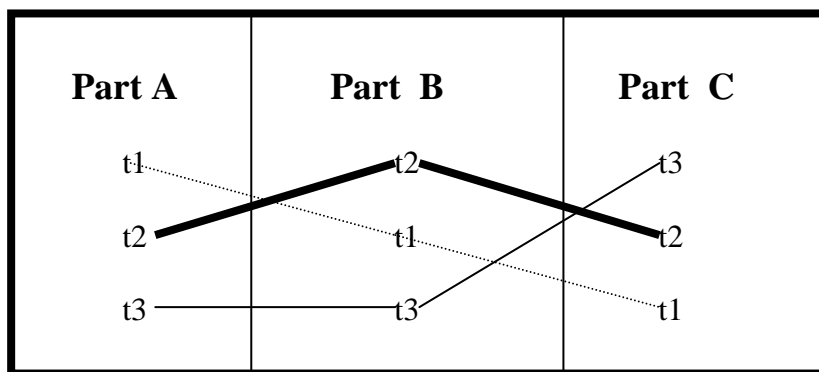


Figure 3.1 The whole system with sub parts and a number of connecting themes (Source: Ramstad, 1986:1072)

Being able to describe a system in this manner enables the observer to identify the underlying dominant institutions. However, there may be other external forces acting upon the system, for example an introduction of a new technology or outside policy. An observer should document these forces as potential modifiers to a local institutional framework over time, obviously with internal resistance from those sectors that benefit from the current *status quo*. The more time is spent inside the system and the more themes that can be related repeatedly across the various parts, the more likely that an observer would discover a more fine tuned and accurate

¹⁵ At this point it should be remembered that North (1990:3-6) stressed that the “modelling strategies and skills of the team as it develops is a separate process from modelling the creation, evolution, and consequences of the rules”. Describing the existing institutional framework, for instance, would be modelling the current rules of the game, the investigation and description of public choice processes in creating new social contracts would be modelling the evolution of the rules, and an analysis of bargaining processes among actors (e.g. using game theory) would be modelling the strategies and skills of actors within existing rules.

representation of a local institutional framework This process is referred to as a deeper form of socialisation (Oosthuizen *et al.*, 2005:72). However, and as already mentioned, it would not be possible to present a truly accurate framework, since the system under observation is dynamic and evolving, hence the main aim of the modelling exercise is to discover probabilities.

With the most accurate description of the institutional framework in place and depending on what aims the researcher has in mind more standard economic models, e.g. transaction cost theories (e.g. North, 1992), game theory (e.g. Ostrom, 1990) or public choice theories (Buchanan, 1991) could be applied for specific investigations. However, the interpretation of results from such investigations should always relate to the described institutional framework, which would be one of the ways in which they could relate and be useful in understanding a real economic system. For instance, Ostrom (1990 and 1992) used game theoretic approaches to investigate bargaining processes in the management of irrigation water resources within an institutional framework, with the future aim of establishing a better and more socially efficient and sustainable framework.

Nevertheless, a few points to keep in mind about this type of constructing an institutional model, as argued by Diesing (1971 in Wilber and Harrison, 1978:77), are that:

“The nature of human subject matter (re)-produces the incompleteness of pattern. Human systems are always developing and always unfinished; they always retain inconsistencies, ambiguities, and absurdities. Belief systems never achieve complete rationality and consistency; personalities and groups are always in the process of resolving old conflicts and sharpening new ones; accumulations of power are always crumbling and being rebuilt; ceremonies are being elaborated or simplified. Consequently, a faithful model of a particular system at a particular time will itself include inconsistencies, ambiguities, and exceptions. How many of these are due to the inconsistencies of the subject matter and how many to the looseness of the method is difficult to say.”

Essentially, what this means is that:

- a) there are hardly any universal laws in human systems (including economic ones),
- b) the idea of atomised, well informed and rational individuals does not have a place in real economic systems, and

- c) the use of formal models in economics should be carried out within well described institutional frameworks, and within which there is a two way communication.

3.4.1 The limitations of an institutionalist approach

At theoretical and practical levels, research remains an on-going process, especially because progress in finding lasting solutions to real life challenges is slow. The statement applies equally to institutional research. Because, pattern models do not have a scientific precision, the use of holist concepts and data should be monitored continuously and crosschecked against new observations, cases and examples. Otherwise, the body of knowledge generated by institutionalists could be as relativistic as its methods and as ambiguous in its meanings. A very serious limitation of the method is that the process of constructing holistic models is prone to theorist-biased preferences. Because researchers have to observe even their participation in their research, the challenge posed by the *observer's paradox*¹⁶ is also enhanced. Moreover, the impreciseness of concepts makes the verification process of the accuracy of descriptions more difficult (Stone, 1978; Merriam, 1988 in Oosthuizen *et al.*, 2005:75). These are the reasons why an institutionalist would avoid attempting to discover general laws, as his or her theories are continuously evolving. His or her definitions are most likely to be long and open-ended, which could be confusing, especially to scientifically inclined researchers. For these reasons, institutional economists should guard against overemphasising vagueness and suggestiveness, as these would lead to uncontrollable speculation beyond empirical testing. For any method of research, a balance needs to be struck between precision and rigour, as overemphasised in formal methods (Weintraub, 2006), and suggestiveness for creativity in social research (Wilber and Harrison, 1978:83-84). Regarding scientific rigour in case-studies, “(t)he following are some of important elements relevant (or guidelines to the) process: a) identifying the intent of the case, that is, whether the research is testing and modifying existing theory or (is it) exploratory research, b) including explicit discussion of relevant theories and published literature on the

¹⁶ This is an idea that the act of observation interferes with the subject matter and hence what is being observed is also altered during the act, which means that the description of the matter could not be accurate.

phenomenon being studied, just as any empirical analysis that uses quantitative methods to test theory, i.e. being careful with data, d) (incorporating) analytical aids, e) using multiple sources of data for as many variables as feasible, f) telling a good story, being sure that the manuscript is (close to) complete and (is) logically constructed, g) being forthright about (the) limitations and questions for further tests, empirical or logical” (Oosthuizen *et al.*, 2005: 76).

3.5 RESEARCH FRAMEWORK: A REVIEW OF SOME TOOLS IN IRRIGATION AND DEVELOPMENT APPLICATIONS

Since the primary focus of the study is on economic development issues in irrigated agriculture and the use of institutionalism as a framework for analysis, it is appropriate at this point to review some theoretical and practical models that have been used in institutional research. However, to be consistent with the line of argument presented so far, especially the critique against the inappropriate use of positivist methods, the present discussion should demonstrate restraint in the use of empirically falsifiable propositions as its main method. What this entails is that the broader framework adopted in the study is one that follows, a) the discussion and analysis of institutional hierarchies (Williamson, 2000), and b) the institutional evolution presented in section four (Saleth, 2004). As argued in the last section, various other tools and methods, even formal models, can be used in institutional research. However, the use must directly inform the objectives of a broader framework of, a) presenting an historical account of prevalent institutions, b) discussing the political processes through which societies negotiate new rules and practices, and c) analysing the strategies used by individual actors in competition games played within socially agreed upon rules. The framework should then first allow an institutional discussion and application of:

- a) competition and transaction costs (i.e. market based theories),
- b) public choice theories (i.e. political processes), and
- c) the distributions of power and information which may lead to conflict (i.e. economic and political bargaining) and, *second, the use of formal tools for verification of hypothesis as discovered from institutional research.*

Such theories will be discussed and applied to varying degrees throughout the study and within the broader discussion of an institutional evolution of development issues

in irrigated agriculture. Hence, the section presents one of such analytical tools with an illustration of its institutional application as will be used in the forthcoming case studies and institutional discussion.

3.5.1 A framework for analysing information asymmetries for development

Bromley (1982) formulated a Physical Externality Model (PEM) with supporting data gathered from case studies documented from river basins in developing countries like Mexico, Sudan, and Pakistan. The model incorporated institutional and formal elements in its research approach. It could be argued that the main point of Bromley's (1982) study was to illustrate an important characteristic of *path dependency*¹⁷ of informal and unwritten institutions. As illustrated through the model and in support of North's (1992) argument, the economic development path that institutions may take does not necessarily have to be an efficient one. Such is especially true in cases where information asymmetries and bargaining power disparities exist. Bromley (1982) showed that uncertainty led to sub optimum production outcomes, and unequal bargaining powers sustained these outcomes. Looking at river basins, with a special geographical design, which allow a certain type of water diversions and allocations to take place, through the model he argued that the primary source of uncertainty along a river (a type of watercourse) is its physical design. The decisions taken within the uncertainties, over time become the operational rules and practices that become particular to that system. The resultant economic outcomes from the rules are persistent production and market inefficiencies. The conclusion drawn was that the formulation of public policies (i.e. external institutional intervention) should understand and factor in the primary sources of these inefficiencies prior to any prescription of redress actions. Because the real cause of the problem is a geographical one, which might be difficult to resolve without technocratic solutions, the alternative solutions would be institutional in nature. The aim of institutional policies in these cases should aim at reducing the levels of uncertainties created by the physical design of the watercourse to encourage more efficient markets. This argument is based on, a) limiting transaction costs with the establishment of better institutions for better information flows (e.g. North, 1992), and b) the continuous

¹⁷ This means that once established institutions are resistant to change.

bargaining strategies (e.g. Ostrom, 1990) of farmers (often actors with unequal economic powers) who divert water inputs from the watercourse.

In illustrating the nature of the production inefficiencies that are prevalent in the system, Bromley (1982) borrowed analytical tools from the *general equilibrium of welfare economics* (Black *et al.*, 2005 and Fryer, 2004). An Edgeworth box diagram was used to depict production inefficiencies. The use of the PEM in this study illustrates the way in which an institutional research approach could borrow tools from formal methods, however, but with the overall purpose of discussing the evolution of local institutions, in this case the operational rules in allocating irrigation water.

Formally, the Physical Externality Model (PEM) postulates that the geographical positions of farm units along a watercourse in which water is *diverted individually* (figure 3.2) give rise to technical inefficiencies that adversely affect the production outputs of, especially, downstream farmers, *cet. par.* Data from case studies from selected developing countries indicate that the farm units, which are located at upstream positions, tend to be bigger in size and their owners tend to have a bigger political influence on decision-making institutions that govern allocations and output market prices. The inefficiencies arise because of uncertainties regarding how much water would be available for the next cycle of production. Figure 3.2 illustrates a watercourse in which uncertainties intensify as one moves from the most upstream (A) to the most downstream (B) location.

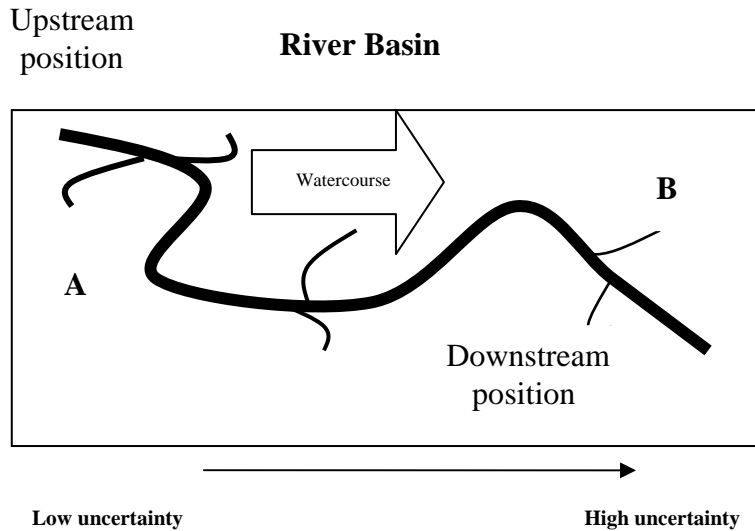


Figure 3.2: A watercourse with individual water abstractions

According to the PEM, the farmer located at B is economically disadvantaged compared to the one at position A. This is because his/her decisions with regard to basic inputs, especially water resources, are dependent on how much water is abstracted upstream, by the farmer located at A, hence how much water is available to him/her. In the model it is assumed that the farmers are naturally risk averse, hence, a) farmer B's allocated budget for production inputs - within an environment of heightened uncertainty - would be conservative, and b) farmers rely on the last production cycle's data to make decisions for the current cycle.

In Figure 3.3, the production inefficiencies are illustrated using an Edgeworth Box diagram, where finite levels of water inputs are represented on the horizontal axis and all other inputs on the vertical axis. The figure only depicts a 2 x 2 economy with only two producers (farmer A and B); however, the results extend to an n-farmer and n-sector economy.

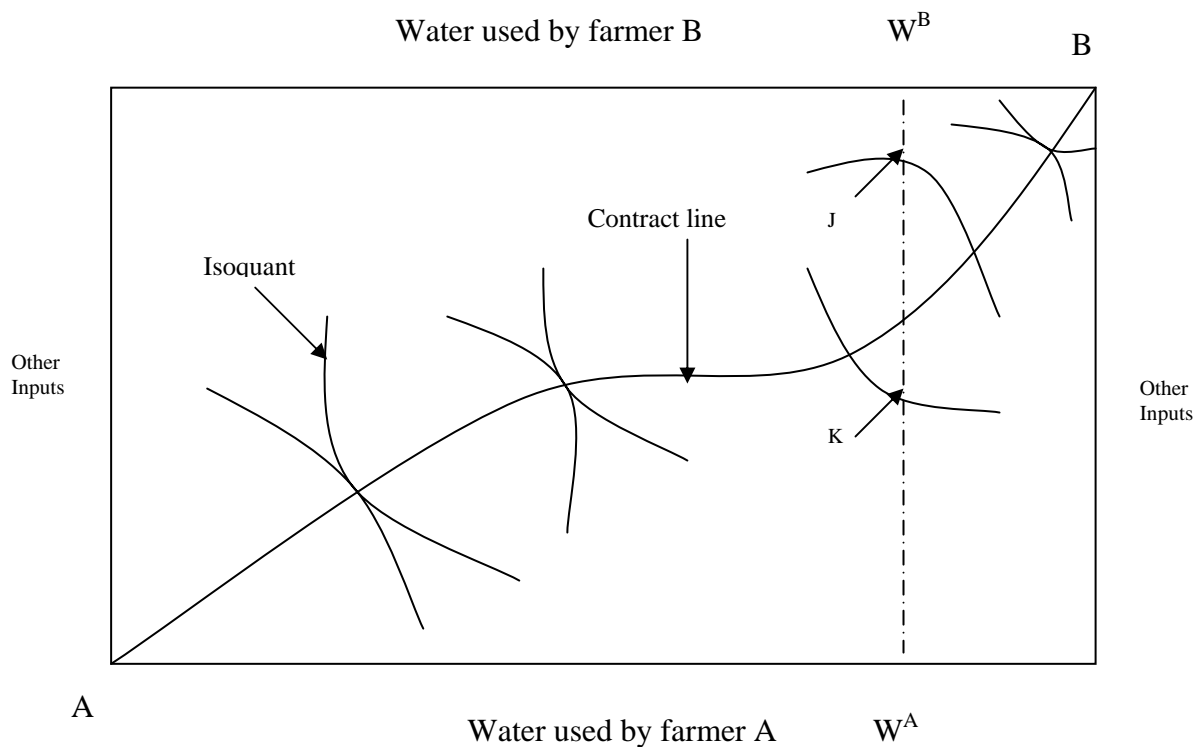


Figure 3.3: Inefficient resource allocations in agricultural production
 Source: Bromley (1982:13)

The PEM also postulates that after an initial round of bargaining between the farmers and after decisions have been taken on input allocations, due to prevalent uncertainties, farmer A ends up producing at point K, and B at point J. Both of these positions are inefficient, because as seen in the diagram they lie outside the contract curve AB, which represents efficient productions (Black, et al. 2005:17-19). Moreover, the illustration shows that farmer B's share of resources is much smaller than Farmer A's, as s/he operates on a much lower isoquant. This illustrates the dominant economic position of upstream farmers.

The PEM highlights the deleterious effects of information asymmetries, which prevent efficient markets from forming and reinforce unequal distributions of economic and political power that may already exist. Institutionally, the reliance on data from past production cycles form part of an ingrained and self-sustaining cultural practice (of self-regulating rules) that govern the behaviour of the whole system (a farming community) (Bromley, 1982, North, 1991).

How public policy proceeds in resolving these inefficiencies depends on, first, how it regards technology (that may physically reconfigure the watercourse design) as an important solution compared to the persistent institutions that sustain the uncertainties and unequal power distributions. For instance, institutionalists interested in economic development would think of institutions as the core solution to the problem and technology as a supporting factor. On the other hand, *supply economists* would be inclined to prioritise the technological solution as *the* singular engine for improving the system, by thinking of prevailing institutions only as a constraint (transaction cost) in adopting new technological innovation that would redesign the water system (Bromley, 1982:31). Such thinking would lead to the construction of dams, canals, control structures, etc., without paying much attention to the operational rules. However, as shown by historical evidence technological solutions are not always the brightest solutions in resolving irrigation problems in developing countries (Eicher, 1999). The failure of many technological agricultural projects in Africa as highlighted by Eicher (1999) supports this argument. Moreover, Bromley (1982:36) contended that “(i)t is for this simple reason that the traditional (technocratic) approach to irrigation agriculture has created a number of unsuccessful projects. It is not sufficient to construct the engineering works and ‘get the water flowing’ with only vague and general rules governing water allocation and maintenance of the system”. A historical account and description of prevailing institutions as discussed in this chapter would form the basis for making any technocratic decision, however, within an institutional framework. On the other hand, the establishment and/or encouragement of better institutions to evolve should not equate itself to the importation of institutions from other environments or countries in the hope of short-circuiting the time consuming process of encouraging indigenous institutions (Eicher, 1999:5). These points are illustrated with evidence from the Kat River Valley case studies to be presented in chapter five.

3.6 CONCLUDING SUMMARY

The main points from the chapter are that the understanding of institutions is the key to all economic thinking and research. The neoclassical economic assumptions of rational, atomised individuals who are free from institutional constraint remain unrealistic. Economic theorising that is founded on these assumptions would always

be out of touch with real economic transactions. Any economic models that are premised on these assumptions would remain the ‘conceptual straightjacket’, as referred to by Demsetz (1969 in Rutherford, 2001:186).

The alternative solutions proposed by institutionalists are different; however they are not too foreign to other social sciences, and hence require a mental shift in the way economists think about economic issues and general research. Nevertheless, the solutions are far from being fault free. However, their application especially in research would allow a more realistic engagement of the economic issues by the discipline. As Coase (1998) would have it, they would bring the study of the blood circulation closer to its body. On the other hand, following the *new institutionalist* tradition, an economist would not have to throw away all of the neoclassical economic tools from the box. However, s/he would have to learn to use them more responsibly and appropriately as required within an institutional framework. One of the aims of this study is to illustrate how such a framework is designed using irrigated agriculture as a vehicle for economic development in a well-demarcated and local context. Hence, in the following chapter the methods used in designing the research approach to the study, collection and analysis of data from KRV case studies are set out more fully.

CHAPTER FOUR – RESEARCH METHODS

4.1 INTRODUCTION

The methods used in collecting and analysing data for this research were mostly ethnographic and institutional in nature. For the main phase of the project, three primary case studies were documented from the Kat River Valley (KRV), and local and international cases from environments similar to the KRV were reviewed for comparative analyses. Scientific as well as technical data were collected from academic, government, business reports and from minute records of meetings of various organizations in and outside the KRV that formed part of the research. Guidelines for documenting social science case studies by Oosthuizen *et al.* (2005) and a checklist of questions from Wilber and Harrison (1978:77) were continuously used throughout the documentation of the KRV cases to ensure that the narratives in the studies were the most plausible ones. The data analysis phase was based on the framework of institutional evolution (Saleth, 2004), which was presented in the previous chapter.

The present chapter explains the specific methods, and the reasoning behind them, that were used in the two main phases of the research process between 2004 and 2006. The methods that were used for documenting each of the case studies in 2005 and 2006 are also explained separately. Overall, the chapter presents the process of data collection and analysis, which is in line with arguments made in the previous chapters of employing institutional methods in economic research in general, and in developing country contexts specifically. It also explains how questions relating to the debates on economic development as presented in chapter two were interrogated in the study. Hence, section two of the chapter explains the methods used in the preliminary phase of the research and those used in each of the KRV case studies. In section three, the framework used in analysing both primary and secondary data is explained. Section four summarizes.

4.2 INCEPTION PHASE

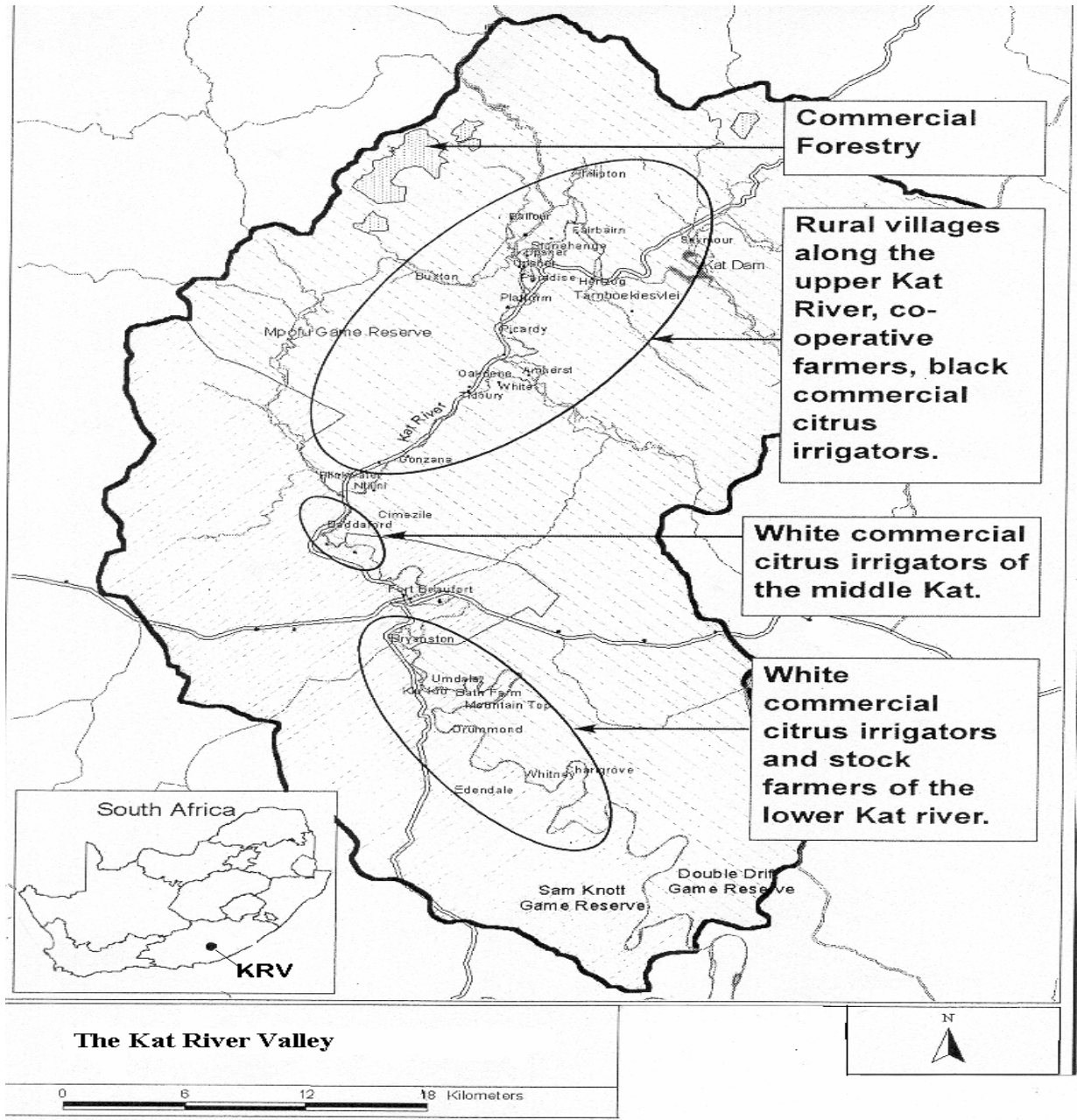
The initial work for the research began in 2004. Based on the requirements for implementing the water resource management objectives of the National Water Act (NWA, 36 of 1998) in the Kat River Valley (KRV) catchment, a systematic-random universal sample (Stoker, 1984:3-9) of 234 household observations was drawn from three socio-economically different communities¹⁸. The primary aim of the household questionnaire survey was to establish a basic understanding of the area's demographic patterns. From this preliminary survey and discussions of the NWA's (1998) implementation process it was concluded that one of the ways in which the Department of Water Affairs and Forestry (DWAF) could economically develop and empower the local rural population for their participation in local water management institutions was through skills development in incentive driven business projects. Hence, from the conclusions the premise was established in the main phase of the research for investigating an irrigated agriculture-based and river basin-wide development programme. The various community group tensions and conflicts with respect to water allocations found in the valley were used as vehicles through which to interrogate economic development themes similar to those discussed by Ostrom (1990) and Bromley (1982). Such an approach was guided by investigations of social and economic transaction costs (from the prevailing local conflicts) as they affected economic development in the same vein as discussed by North (1990 and 1991), which was presented in the previous chapter.

From the preliminary survey and meetings¹⁹ with the KRV farmers throughout 2004, at least three social systems or communities were demarcated for investigation using the Ramstad (1986) framework illustrated in figure 4.1. These systems were identified for their homogeneity with regard to variables like farming and business activities, historical patterns of settlement, geographical location within the KRV, political

¹⁸ Rural villages and Seymour township were divided into five and three zones on maps used for town-planning by the Nkonkobe Municipality. The zones containing a proportionate number of houses were systematically identified for interviews. Moreover, ten black and white Commercial farmers were selected for questionnaire-guided interviews. Ultimately three sub-samples of, a) commercial farmers, b) rural villagers and subsistence farmers and c) township residents formed the universal sample (Mbatha, 2005:58) These communities are represented in Map 4.1

¹⁹ Almost on a monthly basis.

leverages at local water management institutions, etc. The communities are identifiable in Map 4.1, namely a) the group of white commercial farmers in the Middle to Lower reaches of the valley, b) the black commercial farmers and subsistence farmers in villages of the Upper reaches.



Map 4.1 The KRV farming communities²⁰

Notably, most of the social and geographical characteristics used in demarcating the communities also mirrored their different economic attributes. For instance, the

²⁰ Distance scale may not be accurate due to map fitting on page.

groups with higher political influences at local water management institutions happened to be relatively more economically empowered, as they owned bigger and more profitable farms for instance. Hence, by employing an institutional approach in investigating the social systems, the characteristics also formed the basis for identifying the themes of investigation as discussed in chapter three and illustrated in Figure 4.1. For example, an attribute like farming business operations was studied within and across the three sub-systems as a theme represented by t1 or t2 in Figure 4.1., where *part a or b or c* in the actual cases would represent a specific group of farmers, for example commercial citrus farmers.

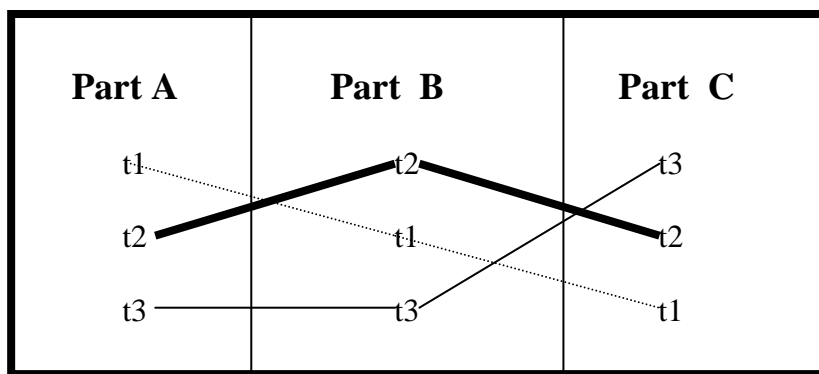


Figure 4.1 The whole system with sub parts and a number of connecting themes (Source: Ramstad, 1986:1072)

Following Oosthuizen *et al.*'s (2005) guidelines²¹ on documenting case studies or holistic stories, the KRV communities were studied from the year 2005 to 2006. The specific methods used in documenting each of the KRV cases are presented separately in the following sub-sections. Moreover, throughout the data collection and analyses processes as well as during the write up phase of each of the cases a checklist developed by Wilber and Harrison (1978:77) was used as a guide in discovering the most plausible narrative lines. These questions were asked:

- a) are the facts and theories correct?
- b) are important facts or theories omitted?
- c) can one find other stories, which use the facts and theories employed in the given story?

²¹ It was ensured that the studies were, a) particularistic, b) descriptive, c) heuristic and d) their internal cohesion mostly relied on inductive reasoning. Merriam (1988 in Oosthuizen *et al.*, 2005:71) explains the meanings of these characteristics as, a) focused on a particular event or programme, b) being rich in the description of the event, c) presenting new meanings to known phenomenon, respectively.

- d) are the facts and theories relevant or essential to the story; that is, can no other hypothesis be used to tell as good a story about the facts?
- e) do experts in various parts of the story believe the story itself?
- f) are cultural values correctly stated?
- g) are all cultural values included in the story?

With regard to the KRV case studies, the purpose of going through the questions, more than once, was to ensure that the data collected from various methods was useful in creating the most coherent story, as different stories, with vested interests, were presented to researchers by many of the respondents in the field.

4.2.1 Case study one: *business partnerships in irrigated agriculture - a case of black commercial farmers*

The data collection process for the case study was conducted in two phases over a period of a year and a half between 2004 and 2005. In the preliminary phase of the research, basic data of a qualitative and quantitative nature were obtained through questionnaire interviews with fifteen black and white commercial farmers (out of a total of thirty) and through attending the KRV Water Users' Association (WUA) bi-monthly meetings and workshops organised by water specialists from Rhodes University. The data from that period formed the basis for designing the second phase of the research, with the data collection-process taking place during 2005 (Appendix 1). The methods used in 2004 were mostly conventional and included a Contingent Valuation (CV) survey component. The methods used in 2005, however, were heavily influenced by institutional economic discussions by Wilber and Harrison (1978), Ramstad (1986) and Oosthuizen *et al.* (2005), etc., some of which were presented in the last chapter. The methods entailed that various research approaches, for example the observer-participant, formal questionnaire guided interviews, attendances of business meetings, reviews of documents, be concurrently²² employed in the collection and analysis of data. The overall aim of these methods was to recreate various political, historical and economic narratives of the citrus industry as it affected the black commercial group of farmers in the KRV.

²² “By using a combination of observations, (e.g. interviewing and document analysis) the field worker is able to use different sources to validate and crosscheck findings”, which may also be contradictory as no one source of information is deemed to be the most accurate (Patton in Oosthuizen *et al.*, 2005:72).

Moreover, preliminary and follow up formal interviews were conducted with relevant chief planners and engineers²³ from four provincial government departments and two statutory bodies, namely, the provincial DWAF, Department of Land Affairs (DLA), Department of Agriculture (DoA), the Land and the Water Research Commissions. The purpose of these interviews were to acquire documents with official historical information from the government as well as unofficial and often off-the-record, accounts of how some of the officials perceived the political and business proceedings that affected the black citrus farmers in the KRV and elsewhere in the province. The gathering of unofficial data included informal discussions about the history of the various departments' difficulties on political engagements with the emerging farming community in general and the black KRV citrus farmers specifically. During such discussions, off-the-record views and attitudes of officials responsible for public policy implementation processes were highly valued and noted for later use in analyses of sustained institutional conflicts in the valley. The views were also used as guidelines in formulating questions and points of discussions with farmers during on-field observations of farm operations. Government archives were searched for policy documents, historical records, etc., that were relevant to the KRV area and the topics under discussion. Selected minutes from meetings (in the past five years) of the provincial DWAF regarding the NWA (1998) implementation process with institutional structures set up for that specific purpose were also studied. The documents were analysed to identify some of the sources of policy challenges as reported by officials during the actual interviews.

In the field, formal to informal discussions were conducted with farmers and farm workers and dwellers. Farmers were encouraged to give presentations on their business ideas for future development ventures and some provided minutes from meetings they had held with government officials, for example from the DLA, and private investment officials from the Industrial Development Corporation (IDC). The objectives of field visits were often open-ended to ensure that farmers had the opportunity to present and discuss issues of conflict that were most crucial to them.

²³ Provincial DWAF: Senior Water Engineer, Regional Office in Cradock, 2005
Provincial DLA: Chief Land Planner Regional Office in Port Elizabeth, 2004 and 2005
Provincial DoA: Senior Engineer, Regional Office in East London, 2005
Provincial Office: The Land Commission, Land Commissioner in East London, 2006
National Office: The Water Research Commission (WRC) in Pretoria, 2004 - 2006

Finally, significant themes or factors gathered from the presentations of current business activities, discussions on points of local conflicts, reading of minutes, analyses of future business plans and official policy documents were isolated for further inquiries within a transactional cost framework (North, 1992), which was presented in the previous chapter. The themes that received the greatest attention and were most recurring in most data, for instance land tenure insecurities, farm debts, mismanagement of citrus farms, provided the orientation for presenting, discussing and evaluating the important factors regarding the developmental prospects of black commercial farmers as well as the valley on the whole.

4.2.2 Case study two: *economic externalities in water allocations – a case of white citrus farmers in the middle and lower Kat River reaches*

More than one method was used in collecting data for the case study, and a more formal approach was adopted in the analysis of both historical and technical information that was gathered. The historical patterns of water allocation rules and conflicts were presented and analysed alongside quantitative measurements of abstracted water quantities and quality throughout the period under study. The approach entailed an application of Bromley's (1982) Physical Externality Model (PEM) (which was presented in chapter three), where, a) the actual water quantities and quality of water abstractions, b) the water storage practices, and c) the sizes of land developments were analysed alongside the observed and reported tensions among competing groups of farmers.

Between 2004 and 2005, six meetings of the Water User's Association were attended. Ten semi-formal and formal interviews (Appendix 1) were conducted (where some were tape-recorded) with white commercial farmers from the different sections of the KRV. Selected sections of the recorded interviews were transcribed and used in recreating anecdotal historical accounts of settlement patterns in the valley and of the evolution of water allocation rules and business activities. Large citrus farms and small irrigation crop schemes were continually visited, between 2004 and 2006, for on-site observations of how water resources were abstracted, used and stored on farms from the Kat River system. In 2004 and 2006, water management and irrigation

business workshops were facilitated for small-scale farmers and domestic water users. The workshops formed a platform for a two-way exchange of water policy related and agricultural business information. Once again, interview meetings with officials from the provincial government departments, i.e. the DWAF, DLA and the Land Commission, were conducted in 2005. Archival data from the KRV WUA and DWAF pertaining to water allocation rights and records of payments in the past ten years were acquired for comparative investigations. Transcribed minutes of the KRV WUA meetings between the years 2001 and 2004 were acquired for the same analysis. Interviews and workshops organised by water scientists at Rhodes University, working in the Kat River system, were conducted and attended respectively to collect scientific data. Documents on water quality measurements in the KRV system from 2003 and 2004 were analysed against data from technical government reports as well as against historical data from interviews.

In 2005, four research assistants were dispatched to collect data by observing the business operations of small irrigation schemes over extended periods. The researchers spent from five to ten consecutive days in the field recording observations and conducting interviews. In addition to the observations made, questions that researchers used during in-field stays were prepared in advance in questionnaire format (see Appendix 2), but some were formulated as required on the spot. Subsistence farmers in irrigation schemes were encouraged to recount their, sometimes conflicting, versions of historical events and these were recorded without alteration for later analysis. At the same time, data from business documents, for example the Hacop constitution (Appendix 3) and business reports, were collected to be studied at a later stage. From the data, the research process once again identified recurrent themes (as illustrated in Figure 4.1), of a technical, geographical and historical nature for an institutional analysis of water allocation conflicts using the Physical Externality Model as framework. The data were analysed for conformity, or lack thereof, to the model. The main policy discussions in this case, however, were framed within an institutional approach, which focussed on political power distributions and conflicts.

4.2.3 Case study three: *political and business institutions – a case of subsistence farmers*

The focus of the case study was micro in the sense that a small irrigation scheme, which used less than seventy hectares of land and had thirty active members in 2005, formed the subject of investigation. Hence, an even more ethnographic approach in documenting the case was employed. Between 2004 and 2007, intermittent interviews with the scheme's leadership were held on a continuous basis (at least at three monthly intervals) with an aim of monitoring and gathering information regarding the business and marketing opportunities as well as external support that was available (or lacking) to the scheme. In late 2005 and over a period of ten consecutive days, two researchers monitored²⁴ the scheme's operations on a daily basis. Two weekly meetings of the scheme that took place during the ten days were attended, after which on-the-spot interviews with twenty members of the scheme were conducted. The majority of the questions asked were related to the daily operations of the scheme and the proceedings at the weekly meetings. Documents of a technical and business nature were studied and compared to the actual activities as observed in practice. The primary aim of the research methods employed at Hacop were, a) to tell a political and economic story of the scheme since its inception in 1994, b) to identify factors that gave rise to its establishment and sustainability for over ten years, and c) the political and business oriented struggles that prevented it from growing in numbers and in economic activity. Hence, a highly detailed and descriptive tone was deliberately used in documenting the case. In line with social science writing, the way in which conclusions were drawn from discussions and analyses of events and factors, were for the most part, *inductive* in nature. An emphasis was also placed on the "direct concern with experience as it (was) lived or felt or undergone (by the Hacop members)" (Sherman and Webb in Oosthuizen, 2005:72). In addition, media reports and academic articles written about the scheme were reviewed during and after the collection of field data. To make more sense of the information gathered in field, a workshop was facilitated with the scheme members and leadership to clarify, accept and/or refute the interpretations of events and data as recorded by researchers, (see Appendix 4 for the meeting's agenda). Moreover, the workshop was held to provide

²⁴ This entailed daily observations and noting of interesting and odd operations in the field and business practices.

farmers with an outsider's understanding of their business activities, and to exchange knowledge about some of the government's policies, for example the NWA (1998) and the legal implications of setting up a Trust Fund as a potential vehicle for conducting the scheme's formal businesses²⁵. Scheme members requested this information beforehand. The workshop proceedings were a prototypical example of a situation in which researchers became active participants during the process of collecting data. After the workshop, meetings with the DLA and the Land Commission were conducted to establish an official view on the future prospects of the scheme's survival especially with regard to land tenure issues.

4.3 THE ANALYSIS OF DATA

Since the majority of the primary data gathered for all case studies and discussions were historical and institutional in nature, the main framework of analysis that was later used was institutional. This framework adopted from Saleth (2004) was discussed in the previous chapter. However, in the second case study, the scientific and economic data, especially with regard to allocation rules of water quantities and quality and associated economic externalities, a more formalised analysis employing the propositions of the Physical Externality Model (PEM) was employed. In the discussions and measurements of water abstraction rules, the research sought to verify whether the data confirmed or disputed the PEM propositions as presented in chapter three and illustrated in Figures 3.3 and 3.3. Hence, the historical data with regard to participation trends and *voice* dominance of certain groups at local water management institutions were studied against the backdrop of more scientific data, i.e., on volumes of abstracted water, land sizes developed for irrigation business, production outputs, available markets and geographical positions of farmers. The analysis also looked at how external political agents had historically influenced the *status quo* for the period under analysis. Based on the results of how the data fared against the PE model propositions, institutional factors judged to have been crucial for the development process of the KRV, but missing in the PEM propositions, were identified for discussions on remedial policy options.

²⁵ The majority of the information presented during the workshop in this regard was acquired from the Trust Property Control Act 57 of 1988.

To illustrate the complimentary values of an institutionally founded knowledge, and the usefulness of the research framework proposed in chapter seven, in the design of contextualised formal research questions, the Analysis of Variance (ANOVA) is used to investigate two hypothetical questions with regard to the effects of land insecurity on the process of development. Simple and linear regression models, which investigate the relationships between selected institutional variables, such as the effects of private land tenure rights on average income earnings and acquisition of formal years of education for some individuals in the 2004 KRV sample are investigated.

Overall, a predominantly institutional framework of analysis was applied to all the KRV cases and those used for comparative analyses, which were documented from developing countries such as Tanzania and Zimbabwe. In that regard, Saleth's (2004) three-stage topography of institutional evolution, which was reviewed in chapter three, was used to guide the discussion. *Firstly*, data from the KRV case studies were analysed for how competing forces among various cultural institutions may have led to their rise and/or demise. The exercise entailed an isolation of economic in/efficiencies of formal and informal water institutions that were most dominant in the 20th century. The resilience of especially inefficient institutions was discussed with connections made to the external political environments that may have supported them, where fair economic competition may have led to their elimination. The analysis employed North's (1992) theoretical propositions in discussions of transaction costs and the long-term survival of social and economic institutions. *Secondly*, an analysis and discussion was presented on how local institutions deemed to be economically inefficient survived as a result of prevalent social conventions and without any external support. The analysis was framed around Quiggin's (1988) discussion of communal rules on the use of natural resources and Hirschman's (1960) propositions of '*the ideas of images of change as obstacles to change*' that were discussed in chapter two. *Thirdly*, the display of power as it manifested itself at institutions like the KRV WUA was analysed from data gathered especially from meeting attendances and minutes. That analysis entailed an investigation of the rules, especially with regard to water allocations, that were dominant in the KRV WUA operations, and if the rules indeed favoured the more economically and politically powerful farmer groups in KRV. Questions on how the present public policy

environment challenged or supported the political *status quo* in the KRV were also investigated.

At a theoretical level, data was used to explore questions and debates posed in chapter two, which pertain to issues of economic development in developing country contexts. At this level results and recommendations for policy from other local and international case studies with irrigated agricultural themes, compiled using more formal methods were presented and comparisons were made on how these differed from the methods, conclusions and recommendations made in present research. Hence, the comparative discussions formed a platform for proposing a case for the unique contributions of institutional investigations to economic research in general that may be missed in strictly formal approaches.

4.4 CONCLUDING SUMMARY

The chapter explained how the research process was divided into two phases. The preliminary phase was more formal in nature and used a questionnaire survey to establish a basic understanding of social, political and economic indicators. It was emphasised that the most important phase of the research, from 2005 onwards, employed a multiple of research methods, especially in the collection of data for the writing of the KRV case studies. The main phase of the research was also heavily grounded in institutionalism and was informed by Oosthuizen *et al.*'s (2005) propositions for documenting sound social case studies. A checklist of questions from Wilber and Harrison (1978:77) ensured that stories told in the case studies were the most plausible. The methods used in collecting data for all case studies were also explained separately.

In the data analysis phase, the chapter explained how Saleth's (2004) topography of institutional evolution was used as a guide framework. It was explained how results and conclusions from similar case studies documented locally and internationally were used in presenting arguments in support of the inclusion of institutional investigations in economic research, but more specifically in research conducted in areas similar to the KRV area. Lastly, the context in which questions and debates on economic development could be related to the KRV area was engaged. In the

following chapter an overview of South Africa's important agricultural public policies in the water, land and marketing sectors during the 20th century is presented. The presentation provides a history of the external policy environment in which the KRV case studies and all other data in the study were embedded.

CHAPTER FIVE – AN OVERVIEW OF SOUTH AFRICA’S AGRICULTURAL SECTOR

5.1 INTRODUCTION

Since human developmental challenges, such as the inequitable distribution of physical and human resources in the South African economy and in the agricultural sector specifically have persisted, if not grown, more than twelve years into the ‘democratic’ political dispensation of 1994, the relevant public policies need serious interrogation. In line with the institutional framework for the thesis, the chapter provides a brief overview of the South African economy and an historical presentation of policies in the agricultural sector²⁶. An argument for the sector’s importance in overcoming the current challenges of underdevelopment in rural settings is put forward. Moreover, the current agricultural policy struggles or even failures at redressing the issues are explained within a presentation of historical policies from which robust institutions encouraging of underdevelopment were inherited. The underlying argument in the chapter (and the thesis) is that the current agricultural policies of the new government aimed at achieving development have lacked the institutional insights in their formulation and implementation design. Hence, the institutional baggage of historical policies is made clear and forms the backdrop from which the Kat River Valley case study data are presented and the institutional discussions and arguments for achieving development in irrigated agriculture are made in the thesis.

In section two, an overview of the South African economy and the important position of the agricultural sector in tackling the challenges of underdevelopment are presented. A historical presentation and discussion of institutional events and influential policies in the sector, with associated negative impacts, are presented in section three. Section four summarises and concludes.

²⁶ The policies under discussion are targeted at the marketing of agricultural products and management of land and water resources.

5.2 AGRICULTURE AND THE SOUTH AFRICAN ECONOMY

Among various economic development challenges, in 2006 the South African economy was marked by high race-group and geographical income inequalities, high levels of unemployment and low levels of formal education. For instance, the *gini coefficient* measured in terms of per capita household income was estimated at 0.67 between 1995 and 2000 (Simkins, 2004 in Black *et al.*, 2005:216). The unemployment levels were reported at more than twenty six percent, using the official and narrow definition (Black *et al.*, 2005:216). These problems were pronounced in less developed and rural regions, due to a history of unequal industrial development across provinces and between urban and rural areas (Nattrass, 1981:23-32 and de Swardt, 1983:1-28). For instance, in parts of the Eastern Cape Province, unemployment levels were as high as fifty percent (narrow definition) (Eastern Cape Government Report, 2004). Table 5.1 illustrates the extent of income inequalities as well as a skewed distribution of industrialization across provinces. On average, the poorest provinces in terms of Gross Geographic Product (GGP), for instance the Free State, with the exception of the Western Cape have a sizeable agricultural sector compared to other industries.

Table 5.1 Estimated population and GGP per industry²⁷ distributions by S.A. provinces

Provinces	Total population million	Total GGP in billion rands	GGP per capita in thousand rands	Agriculture GGP in billion rands	Manufacturing GGP in billion rands	Mining GGP in million rands
Gauteng	9.5	180	18.9	0.9	39.1	7 400
Kwa-Zulu Natal	9.9	72	7.2	3.2	16.5	1 000
Western Cape	4.7	68	14.5	3.5	12.4	100
Eastern Cape	6.9	36	5.2	1.5	7.0	43
Northern Cape	1.0	10	10	1.1	0.3	1 900
Free State	2.9	30	10.3	2.5	3.4	4 700
Mpumalanga	3.5	40	11.4	2.4	7.8	6 400
North West	3.3	27	8.2	1.9	2.0	8 600
Limpopo	5.4	18	3.3	1.1	1.0	2 800
TOTAL	47.1	481	10.1	18.1	82 500	32 943

Source: Stats South Africa. (2006a) and van Riet *et al.*, (1997)

The implication from the data is that, even though South Africa was a fairly industrialized²⁸ country ranked higher than Argentina by the World Bank (2006:208),

²⁷ Stats South Africa (2006:4) data on GDP indicate that the financial sector's relative size is the biggest at 19.8 percent of national GDP, followed by the manufacturing and retail sectors at 16.3 and 14.0 percent respectively. The agricultural sector's is the second smallest, estimated at 2.4 percent, only higher than the electricity and gas at 2.2 percent.

in its poorest provinces - where inequalities were also highest - the agricultural sector remained at the core of many economic solutions aimed at achieving economic development and an improved quality of life. For instance, in 2004, more than fifty percent of South Africa's formal and informal employment (of probably the lowest paid workers²⁹) could be found in the agricultural sector (Nieuwoudt *et al.*, 2004:162). The evidence further justifies the focus of the research on agriculture in tackling developmental issues within an institutional framework and a rural context. Hence, a basic understanding of the history of the agricultural sector and public policies that have shaped it in the past hundred years are important.

5.3 THE HISTORY OF AGRICULTURAL POLICIES IN SOUTH AFRICA

Since 1994, three significant policies have been enacted into law by the South African government with the objectives of, a) promoting efficiency and development in agriculture, b) redistributing agricultural resources, and c) efficiently managing environmental water³⁰. Firstly, the Marketing of Agricultural Products Act (47 of 1996) is the government's deliberate attempt at liberalising the sector from past state interventions of price and output quantity controls. With the enactment of the Act, government hoped that limits on the state's involvement in fixing product prices would allow emerging farmers, mainly from previously disadvantaged groups, access to previously protected and big commercial farmer dominated markets as well as create competition for the benefit of consumers (Marketing Act Commission Report, 1994:3). Secondly, and regarding access to land resources, it could be argued that political considerations, more than economic ones, were the main drivers in the formulation and implementation of land redistribution and restitution policies. Hence, the objective of the Restitution of Land Rights Act (22 of 1994) is to redistribute land to previously disenfranchised black groups who may have suffered forced removals as propagated mainly by the Natives Land Act (27 of 1913) and other subsequent

²⁸ In 2000, South Africa's real Gross Domestic Product (GDP) was at US \$ 164 billion (constant 1995 prices). The figure constituted close to fifty percent of Sub-Saharan Africa's GDP (EarthTrends, 2003) and nearly a quarter of the whole continent (African Development Bank Report, 2000:214). The indication is that South Africa has long passed the "take-off" stage in Lewis' (1954) Two Sector model of economic development.

²⁹ The South African government set farm workers' minimum wage at R713.65 per month for the 2004/05 financial year

³⁰ Water found in rivers, lakes, estuaries, etc.

discriminatory land legislation. Since 1994, various other laws and policies have been formulated aimed at improving both the formal and informal agricultural use of land resources. For example, the Communal Land Rights Act (11 of 2004) and the Land Redistribution for Agricultural Development (LRAD) Programme of 2004 were formulated for a legal transfer of land resources to rural communities as well as for promoting agricultural businesses. The land redistribution process has so far been plagued by many difficulties. The fact that since 1994 there have been more than five amendment bills to the Restitution of Land Rights Act (22 of 1994) is one indication of the legal, economic and practical difficulties facing government and other stakeholders in the implementation process. Political and economic conflicts have actually been reported in the process, some of which have turned into court battles against government agencies (e.g. Isaacs and Hersoug, 2002:148 and Independent Papers, 2005). Thirdly, the Department of Water Affairs and Forestry (DWAF) formulated a National Water Policy (NWP, 1997) guided by the principles of Integrated Water Resource Management (IWRM), which was subsequently enacted into the National Water Act (NWA, 36 of 1998). One of the policy's main objectives was the management of "the quantity, quality and reliability of the nation's water resources (for) optimum, long-term, environmentally sustainable social and economic benefit of society" (NWP, 1997:12). However, in 2006 the department was also caught in a difficult process of implementing the policy by creating nineteen Catchment Management Agencies (CMAs), countrywide. The process has particularly been a challenge because eight years after the NWP (1997) was enacted into law only one such agency had been successfully established by 2006. The following subsections present a more detailed description and explanation of the historical events and policies, which contributed to the emergence and mood of the current agricultural policies, aimed at remedying the high levels of underdevelopment.

5.3.1 The marketing policies

Diamond and gold mining between 1865 and 1915 in regions presently known as the Northern Cape and Gauteng Provinces transformed the South African economy from agricultural dependency, with limited international exports, into the level of industrialisation described in section two (Nattrass, 1981:23-24). The establishment of mines ensured an increased demand for mass transportation of agricultural products,

equipment and fuel. The demand for transportation marked the beginning of the development of railway lines from coastal areas into the interior of the country, where market oriented agricultural activities were previously limited. A more detailed history of this industrial development is discussed by Viljoen (1983:29-59).

The rapid growth of the industrial sector, with high demands for agricultural products, had positive spin offs for the agricultural sector. Table 5.2 presents data illustrating these spin offs, from the period starting from 1904 to 1930, with respect to maize and wheat production.

Table 5.2 Growth of maize and wheat output between 1904 and 1930

Years	Maize average output (in '000 of 200 lbs)	Rate of Growth (%)	Wheat average output (in '000 of 200 lbs)	Rate of Growth (%)
1904 – 1915	8 731		1 878	
1916 – 1920	10 112	15.8	2 202	17.30
1921 – 1925	12 366	22.3	2 080	-5.5.0
1926 – 1930	13 575	9.8	2433	17.0

Source de Swardt (1983:4)

The growth in output was significant during and shortly after the First World War, especially in maize production, as rising world inflation leading to the economic recession of 1920s boosted it. Thereafter, it fluctuated with good years followed by exceptionally bad ones. The recession led to fluctuating prices of agricultural and other products (Marketing Act Commission, 1976:5). Price volatility was rife to an extent that from 1921 to 1923 the price maize³¹ dropped by more than fifty percent, from around twenty shillings to ten shillings³². The decline in prices was further exacerbated by over-production, due to inertia effects from the early years of good economic growth prior to the 1920s (de Swardt, 1983:5).

The economic effects of unstable markets encouraged the creation of new and the strengthening of old institutions, which were supported by government. Such institutions, mainly agricultural cooperatives and boards, single-channelled the outputs of producer-members with the effect of creating and maintaining above market prices. The challenges posed by market instability continued leading to the

³¹ In bag units.

³² Equivalent to a drop from two to one S.A rands.

active lobbying of government by powerful farmers³³ into intervening in almost each and every crop market and related institutions. Ultimately, the strong rise of government intervention in the sector was cemented by the enactment of probably the most enduring piece of legislation in the form of the Marketing Act (26 of 1937). One of the impacts of the protectionist legislation was that, farms owned by those favoured by the state supported institutions increased in size and level of capitalisation (de Swardt, 1983) with negative consequences, especially, for consumers and emerging farmers³⁴.

Hence, in the early 1990s with government officials having fully acknowledged the economic effects stemming from the Marketing Act (26 of 1937) (e.g. Marketing Act Commission Report, 1994), new deregulation legislation for the sector was proposed. The Marketing of Agricultural Products Act (47 of 1996), whose political aims were to a) increase market access to all participants, b) promote efficiency of marketing products, c) optimise export earnings from agricultural products, and d) to enhance the viability of the sector, bore evidence to the radical economic stance of the post 1994 government³⁵ for the agricultural sector. However, huge implementation challenges of the Act have remained, especially with regard to developmental issues. For instance, according to Vink and Kirsten (2002); and Hobson (2006), even though the deregulation process has encouraged a higher Total Factor Productivity³⁶ and profitability, with export growth especially in horticulture, unskilled farm workers, low income earners in urban and semi urban areas, historically disadvantaged commercial farmers, and emerging and small farmers have not benefited from the developments. Ironically, these groups were the ones that the new policies and laws are aimed at empowering. Instead, their exclusion only entails a deeper entrenchment of economic inequalities.

³³ Especially through the Farmers Union.

³⁴ Similar trends from similar protectionist policies, however with different political motivations, were also observed in developed countries for the same period, for example in Europe (de Swart, 1983).

³⁵ It is fair to conclude that the adoption of most of these policies was highly political motivated during such a period of radical political change and hence the stated economic aims in formal policies would need a cautious interpretation.

³⁶ The output growth in horticulture has increased its share of total farm output by ten percent between 1978/79 and 2000/01.

5.3.2 The water policies

Because irrigated agriculture is the biggest user of water resources in South Africa³⁷ (Nieuwoudt *et al.*, 2004), a discussion of water policies of the 20th century illustrates the almost exclusive access of white commercial farmers to these resources. The Water Act (54 of 1956) was the most significant piece of legislation that affected irrigated agriculture. The Act's main focus was on accounting for water quantities. It provided for riparian water rights, where water abstractions for irrigation purposes *could be linked* to the positions (along a watercourse) and sizes of farms to be irrigated. The establishment of irrigation schemes was linked to potentially available quantities that could be held in storage dams and other reservoirs. Scheme members, with access to water rights, would contribute to the construction³⁸ and maintenance of such dams through monthly repayment fees. Hence, the water 'scheduling' rights were based on estimated annual quantities of water resources needed for irrigating specifically sized land areas. The tedious planning involved in establishing schemes for water scheduling was described in the Water Matters Commission Report (1970:163). The report's aim was to give recommendations on "all aspects of water provision and utilisation in the Republic". It also gave a detailed list of which groups of stakeholders were considered important contributors to the planning processes. Other than the local municipalities, more than eighty percent of these contributors were the marketing and irrigation boards as well as big commercial farmers (Water Matters Commission Report, 1970). The institutions involved in water planning matters were exactly the same institutions that had high responsibilities in the marketing and distribution of agricultural products, i.e. agricultural boards and big commercial farmers. Such was a double exclusion of subsistence and emerging farmers, many of whom were black.

The political transition and radical move towards agricultural liberalisation as experienced in the early 1990s, however, introduced a new thinking on water resource management issues³⁹. It also sought to restructure the *status quo* in the accessibility of

³⁷ Agriculture in the Eastern Cape province uses more than fifty percent of environmental water resources (DWAF, 2005a)

³⁸ The majority of the construction costs were still borne by government

³⁹ Based on the IWRM principles.

such resources. It advocated a decentralised⁴⁰ participatory approach to issues of managing environmental water, not only for irrigation, but for other purposes as well. Following the deliberations involving government officials, water practitioners, environmentalists, and local stakeholders, the NWP (1997) followed by the enactment of the NWA (36 of 1998). Through this legislation, and alongside the deregulation process and dismantling of old institutions, the group of commercial farmers had lost significant political and economic sway in the water sector. The NWA (1998) created a potential voice for representation of many competing voices, such as environmental concerns, rural and domestic water users, as well as subsistence farmers versus the old interests of commercial farmers. Broadly, the main purpose of the NWA (1998) was to “ensure that water resources (were) protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors:

- a) meeting basic human needs of present and future generations;
- b) promoting equitable access to water;
- c) redressing the results of past racial and gender discrimination;
- d) promoting the efficient, sustainable and beneficial use of water in the public interest;
- e) facilitating social and economic development;
- f) providing for growing demand for water use;
- g) protecting aquatic and associated ecosystems and their biological diversity;
- h) reducing and preventing pollution and degradation of water resources;
- i) meeting international obligations;
- j) promoting dam safety;
- k) managing floods and droughts;

and for achieving this purpose, to establish (new and) suitable institutions ... with appropriate community, racial and gender representation”

(NWA, 1998:9-10).

The mood of the new water legislation does not ameliorate the political position of agricultural interests (hence of commercial farmers) in water management and decision making processes. Most notably, access to water resources, for any purpose, is no longer automatically associated with land position and ownership, as was the

⁴⁰ Where the national Department of Water Affairs and Forestry (DWAF) would relinquish its local responsibilities to locally based institutions.

case with riparian rights. The economic development of poor and marginalised users and the protection of the environment have high consideration. The legislation has potentially promoted a decentralised and deregulated market for water transactions *albeit* with some protection for weaker participants. Nonetheless, the KRV case studies in the forthcoming chapter still illustrate that from as radical starting positions as that of 1956, the attempts at implementing the NWA (1998) have posed big institutional challenges to government and stakeholders. For instance, the question of equitable voice representation at policy implementation processes, based on current economic leverage, has remained unresolved, which has perpetuated skewed stakeholder participation. Such challenges are also complicated by the current land reform issues, which are discussed below.

5.3.3 The land policies

Adams *et al.* (1999:17-18) argue that in the late 1800s, African family farming was successful at responding to the growing demand for agricultural crops from the newly emerging mining towns. During that time, Africans farmed around eighty three percent of land, which was subsequently owned by white commercial farmers during the Apartheid period. The black family “farmers adopted new agricultural technologies, entered new industries and out-competed large scale settler farming in some of the emerging agricultural markets”. The competition alongside an expanding economy, which increased demand for cheap labour as required by a rapidly growing mining sector in industrialising areas, probably formed *the* economic rationale for passing the ‘most insidious’ of racial segregation laws in the form of the Natives Land Act (27 of 1913) (Wolpe, 1974 and Isaacs and Hersoug, 2002:14). It is possible that singularly this law had the biggest impact on introducing and sustaining the economic underdevelopment of the racial groups, which were targets of discrimination.

Under the Native’s Land Act (1913) limited land was demarcated as scheduled native land to which the movement and settlement of black South Africans was restricted. Referring to land outside the scheduled native areas, the Act stipulated that, “a) a native shall not enter into any agreement or transaction for the purchase, hire, or other acquisition from a person other than a native, of any such land or of any right thereto, interest therein, or servitude thereover; and a person other than a native shall not enter

into any agreement or transaction for the purchase, hire, or other acquisition from a native of any such land or any right thereto, interest therein, or servitude thereover” (Natives Land Act (27), 1913:2).

The scheduled land formed only eight percent of South Africa’s total land area, and the law ensured that it would be occupied by as much as eighty percent of South Africa’s total population (Isaacs and Hersoug, 2002:143-144). The occupants would not be able to move out of the demarcated areas without rigorous monitoring or to buy and sell any piece of land in the rest of the country.

Naturally, the scheduled land areas eventually became the overpopulated reserves for cheap mine-labour, a process that was formalised with the passing of the Promotion of Bantu Self-Government Act (46 of 1959), and subsequently the Bantu Homelands Citizenship Act (26 of 1970). The Acts created separate governments for segregated Bantu Homelands. It is noteworthy that in such homelands a dual system of rights was encouraged, where chiefs were given the full custodianship over designated jurisdictions, which in practical terms were ultimately administered and owned by the state. A system of individual rights and private ownership of land was never allowed (Adams *et al.*, 1999:16). This ensured that *insecurity of land tenure* in the former homelands remained one of the trickiest obstacles to the land reform process as well as development plans up to 2006.

To date, there are no documented studies that have tried to estimate the net economic effects of segregated land settlements on South Africa’s potential development process. However, the current impoverished state of many black occupied land areas, especially in the former homelands, indicates that the net costs have been high. The former homeland areas are characterised by, a) a lack of industrial sectors, b) poor agricultural markets, c) a lack of public infrastructure and provision of services, d) high levels of unemployment as indicated in section two, and e) a high dependency on government security grants (Mbatha, 2005). The burden of paying for these social costs, it seems, has fallen squarely on current and future generations. Moreover, the public costs of implementing the remedial government policies, some of which have been discussed here, are only a fraction of such a burden.

Since 1994, pieces of legislation have been enacted to deal with the land reform challenges. Of these, the Restitution of Land Rights Act (22 of 1994) remains, probably, the most significant one. In its first year in power the African National Congress (ANC)-led government passed the law with the broad purpose “to provide for the restitution of rights in land to persons or communities disposed of such rights after 19 June 1913 as a result of past racially discriminatory laws or practices” (Restitution of Land Rights Act 22 of 1994). Some of the reformative policies that have been formulated under the Act include the land redistribution and tenure reform programmes. In addition, the Communal Land Rights Act (11 of 2004) has since been enacted to guide the reformative process of such common rights, as they are most prevalent in the former homelands. The land restitution process has entailed that individuals and communities lay claims on land from which they were forcefully removed before June; otherwise, they could access the Land Claims Court for legal recourse. From the land redress process claimants could, a) have their land rights restored, b) be offered alternative land, or c) be given alternative compensation in the form of government housing and land development assistance (Isaacs and Hersoug, 2002:144). However, as has been mentioned, the process has been difficult, plagued by backlogs, conflicting claims and court disputes, of which all are institutional problems.

It is also important to note that since 1994 the government has been required to pay compensation, at market value, to land occupants required to move from reclaimed land under the new regime of legislation. However, since some of the land valuation exercises and outcomes have been disputed, by either government or occupants, deadlocks in some negotiations have been reached. It is also interesting that the Department of Land Affairs (DLA) announced in 2006 that the ‘willing buyer willing seller’ principle, which has guided the compensation process, would be reviewed in order to fast track the backlogs of claims (Independent Papers, 2006). What implications the announcement entails is not clear, however, it could be argued that government is considering a policy option where it unilaterally determines the compensation values. In such a process, where government is the agent that pays out the compensation values, it is most likely that such values would be set lower than market prices.

The challenges of determining the future governance and an appropriate system of rights to redistributed land resources have also been noted and are pertinent to the present discussion. When land policy gives preference for redistributed land to be in private ownership, in the hope of stimulating market activity, such a system should also be the culturally preferred and historically practiced mode of governance, with the lowest transaction costs, for it to be successful. The KRV case studies provide evidence that if the locally preferred institutions of governance are different from those proposed by policy; the land reform process would be likely to break down. The different institutional understandings of property rights systems could not only retard the land reform process but also other developmental initiatives, which are reliant on successful transfers of private ownership rights.

Hence, in the case studies and the main discussion chapter, the institutional problems, as unaffordable transaction costs, of implementing the marketing, land and water resources policies in a local context, are described and analysed. The history of how such policies have affected the local group communities, their business and water abstraction practices as well as long-term development process are explained, with possible economic solutions interrogated for policy recommendations.

5.3.4 Tabulated summary of historical events and policies

The following tables form a basic summary of the chapter presentation. The most important events and dates with associated laws in the discussion are presented.

Table 5.3 The summary of the historical and remedial policies of the 20th century in South Africa's agricultural sector

The historical policies			
	Marketing of agricultural products	Land resource policies	Water resource policies
Event/s	Mining and agricultural growth	Racial segregation and Apartheid	Riparian principles
Period	Late 1800s and early 1900s	1800 – 1990	1956 - 1998
Repercussions	* World depression of 1920s * Agricultural market instability	Competition from African farmers	Water access link to land ownership and position
Significant policies/laws	Marketing Act of 1937	* Land Act 1913 * Native Gov. Act 1959	Water Act 1956
Major effects	* Strong regulation * Rise of agric boards * Rise of economic & political blocks	* Lack of private rights affecting black * Chiefdom governance in homelands * Further racial/regional inequalities	* Central (national) management of resources * Strengthening of commercial farmer blocks * Inequitable access
The remedial policies			
	Marketing of agricultural products	Land resource policies	Water resource policies
Event/s	* Political transition * Opening of world economies		
Period	1989 -1994		
Significant policies/laws	Marketing of Agricultural Products Act 1996	* Restitution of land Act '94 * Security land tenure Act '97 * Land redistribution and development policy '04	* National water policy NWP 1997 * National Water Act NWA 36 1998 * National Water Resources Strategy 2004
Broad objectives of policy regime	* Promote market deregulation * Establish decentralized water management (19 CMAs) * Establish markets for agricultural resources & private use and ownership of resources * Promote economic development * Promote equitable access to resources		
Effects & challenges	* GATT 1993: most tariffs dropped (and within bands) * Price controls dropped * Export market growth * Fluctuating exchange rate * Equitable access to benefits?	* Land market difficulties * Underutilization of land resources * Conflicts between government agencies and sellers * Conflicts between community claimants * Private versus common rules	* Slow participation * Slow implementation

5.4 CONCLUSION

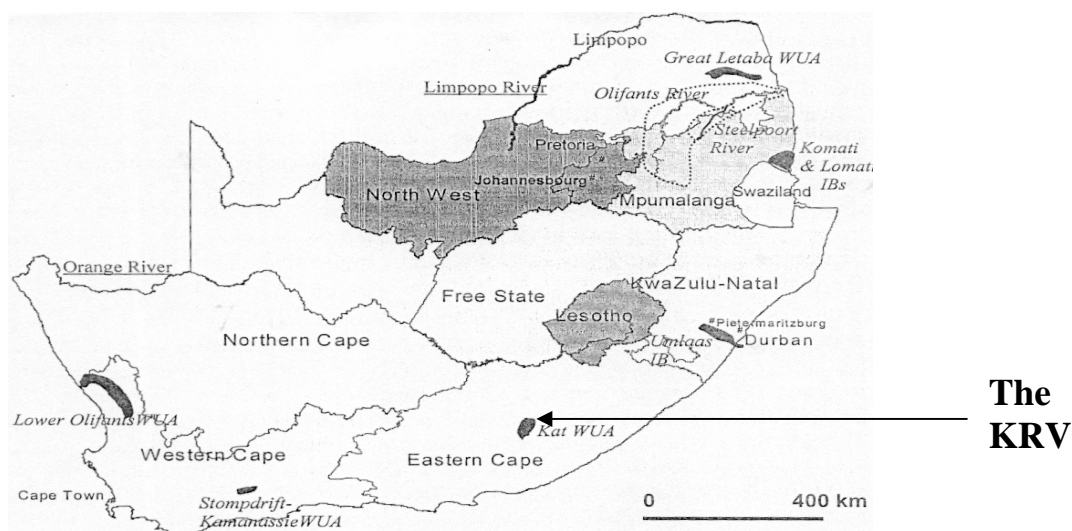
The chapter has presented the background agricultural policies as an historical context for discussing, first, the institutional challenges for achieving developmental goals through public policy, and second, the KRV research supported arguments extrapolated for the main thesis. The argument that remedial policies in agriculture have faced difficulties for lacking an understanding of institutional insights in their formulation and implementation phases is made obvious by the KRV cases in the following chapter throughout the thesis. Hence, many of the discussion points presented in forthcoming chapters will assume some knowledge or familiarity with the discussion of the policies introduced thus far.

CHAPTER SIX – CASE STUDIES ON IRRIGATED AGRICULTURE FROM THE KAT RIVER VALLEY

6.1 BACKGROUND AND INTRODUCTION

As illustrated in the previous chapter, the Eastern Cape was the second poorest province in terms of GGP per capita, and in 2000 it was reported to be the poorest in terms of monthly expenditure (Stats South Africa, 2006a). Unemployment levels were estimated at over fifty percent in the narrow definition. The agricultural sector contributed ten percent towards total *formal* employment (Eastern Cape Government Report, 2004). The figure would have been much higher if informal and seasonal employment was included (Nieuwoudt *et al.*, 2004:162). A significant contributing factor to the poor economic state and skewed levels of development in the province was the 1994 political re-incorporation of two former homelands, namely the Transkei and Ciskei, into the Republic of South Africa and Eastern Cape Province.

The Kat River Valley (KRV) is found in the Eastern Cape Province with its northern parts located in the former Ciskei homeland. It covers approximately 1700 to 1800 km², and is located on the eastern part of the Fish to Tsitsikamma Water Management Area (WMA) number 12 in the Eastern Cape Province (see Map 6.1) (Motteux, 2002).



Source: Faysee (2004:60)

Several agricultural land and water uses characterised the valley. Historically, these included citrus production, which was the most intensive of the land and water uses in the middle to lower reaches. “The conditions in the area (favoured) citrus production, particularly soft citrus, which also (showed) very high returns” (DLA, 1999:5). Also practiced were stock and game farming, small-scale community farming (a wide range of staple crop vegetables) and commercial forestry in the most upper reaches (refer Map 6.2). The demarcated land sizes in hectares for the various uses, which are illustrated in the Map, are also presented in Table 6.1.

Table 6.1: Land use division and extent

Type of use/ownership	Land size (hectare)
State owned land	85 000
Nature reserve and forestry	30 000
Agricultural land superfluous to state disposal (redistribution purposes)	50 000
Privately owned	5000
Total	170 000

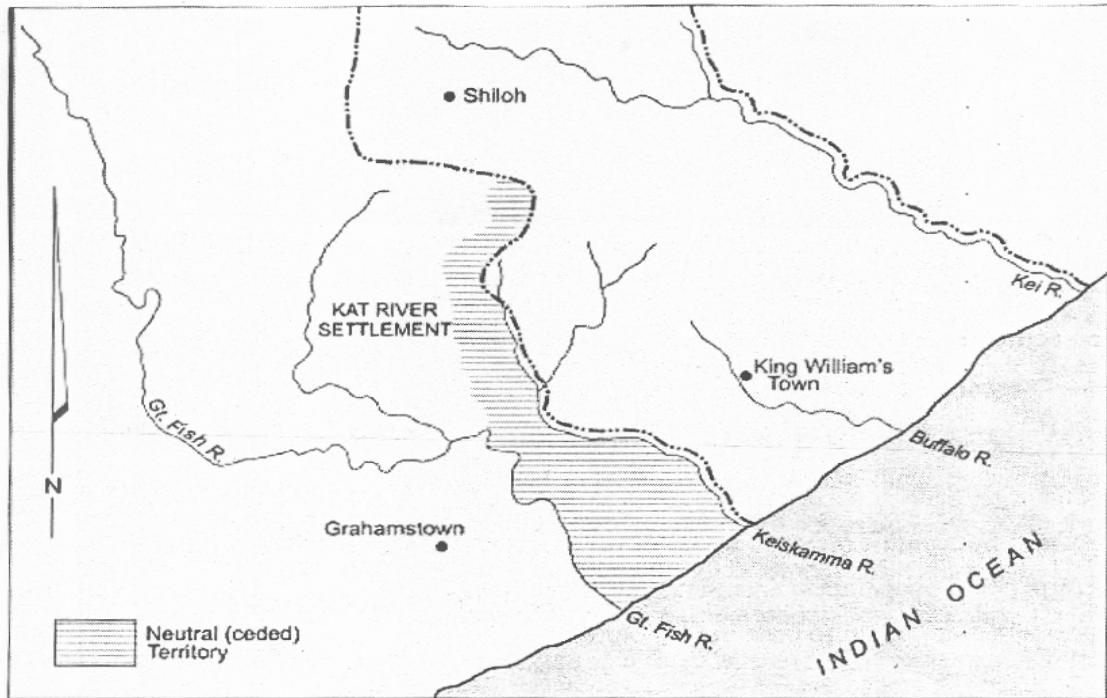
(Source: Loets, 2005)

The town of Fort Beaufort (centre of Map 6.2) was the biggest urban centre. Seymour and to some extent Balfour towards the northern parts were semi-urban. Approximately 36 rural and informal settlements were located close to the banks of the Kat River, because the river’s water was one of the most valuable input resources to households’ consumption and food production. The third case study presented in this chapter is dedicated to a political and economic description of the water-based businesses in these villages (KRV WUA, 2004 and Motteux, 2002).

6.1.1 A brief political history of population settlements and resource conflicts of the KRV

The nature of present day settlement patterns and resource distributions in the KRV could be traced to the frontier wars of the 1800s between the Xhosa versus the coloured people and British settlers. In 1829, the British army forced the Xhosa Chief Maqoma and his subjects out of the valley. Thereafter parts of the area were designated for coloured settlers, of the ‘Khoi-San and ‘freed slave’ origin. The

coloured people were strategically settled to form a barricade zone between the British/Dutch farmers and the Xhosa enemy (e.g. Motteux, 2002; Nel, 1997). This zone, also known as the 'no-man's land', stretched between the Great Fish to the Keiskamma Rivers (in Map 6.3). It was characterised by constant battles over land and other resources from 1820 to 1870.



Map 6.3 The Buffer Zone between The Great Fish and the Keiskamma Rivers
(Source: Motteux, 2002:50)

In the late 19th century, several citrus producing white farmers settled on the lower to middle reaches of the valley, not far from the town of Fort Beaufort (Motteux, 2002:52-62). In 2007, the descendants of some of the farmers, who have continued farming citrus, were members of the Riverside S.A. or Katco packinghouses. These are the two big marketing and distributing agencies in the KRV and the former's business initiatives provide key factors for analysis in the first case study presented in the present chapter.

The enactment of the Land Act (27 of 1913) and the Bantu Homelands Citizenship Act (26 of 1970), discussed in the last chapter, formalised and cemented the racially segregated settlements, which were found in the valley in 2007. When the Stockenström region, part of which falls in the KRV, was transferred to the former

Ciskei (established in 1971) some of the citrus producing white and coloured owned farms in the area were expropriated for consolidation into the homeland by the South African Development Trust (SADT) (DLA, 1998:1). In the opinions of local farmers, in many instances below market prices as compensation were paid for the expropriation (e.g. Roberts, 2004). On the other hand, around 1800 km² of land was transferred to dislocated farmers who could prove to have been victims of forced removal in the forming of homelands under auspices of the Boedel Erven Act (11) of 1975 (Motteux, 2002:50).

After the departure of coloured and white farmers in various parts of the KRV, which fell under the jurisdiction of the new Ciskei, black farm workers were left without formal and/or legal support for continued economic sustenance. There was uncertainty with regard to the time limits they would occupy the farms. According to the local magistrate, the affected population was approximately 19 000 in 1990 (DLA, 1998:1-2). This number should have increased markedly by 2007. Some of the former workers emigrated, but those who remained on the land made use of some of the abandoned farm resources. They began crop farming and kept livestock but in 2005 a majority of them mainly survived on social transfers and remittances (Mbatha, 2005). These subsistence farmers are subjects of the third case study presented in this chapter.

In 1981, the Ciskei government, increased its support for the agricultural sector and established the 'large scale and externally managed' parastatal Ulimocor (Magingxa, 2004:456-466 and Motteux, 2002:52). One of the 'dubious' accomplishments of the parastatal was to allocate land leases for previously white owned citrus farms to partisan civil servants in various regions of the Ciskei. The regions included the KRV (in the Stockenstrom district), Victoria East and Peddie. The land transactions between the civil servants and the Ciskei government were performed as 'lease-to-purchase agreements' (Motteux, 2002:52). Thirty such farms (eighteen of which were situated in the KRV) were transferred to new black owners, who form the subject of case study number one in the chapter.

A closer historical inspection of each of the three main KRV farming communities revealed that separate formal and informal rules as well as cultural practice governed

water allocation matters, individual and collective use of resources as well as business transactions. The formal rules for each group were mostly in written form, for example, business constitutions, rules for the dam's technical operation, etc. Informal and non-written rules were also followed and especially enforced in the upper Kat rural villages (refer Map 6.2). Some of these management rules and practices alongside their economic development implications are isolated for discussion in the forthcoming case studies.

6.2 A CASE OF BLACK CITRUS FARMERS AND LOCALLY INITIATED BUSINESS PARTNERSHIPS

6.2.1 Introduction

It has been indicated that citrus farming is the biggest and most capital intensive agricultural business in the Kat River Valley (KRV). The Katco⁴² Enterprise Budget in Appendix 5, illustrates the magnitudes of production outputs, costs and markets projected over a ten year period for at least eleven varieties of citrus fruit, which were produced in the Valley. However, not all citrus farms were being used productively or to their potential. In fact some of the farms were completely abandoned by farmers, especially those previously under the administration of Ulimocor. A number of factors contributed to their state of affairs, for example poor government policies with regard to occupation lease agreements, bad in-farm planning and resource mismanagement. The group of black citrus farmers from the former Ciskei homeland, which are listed in Table 6.2 and Appendix 7, did not have land title-deeds and had collectively incurred huge debt to the former Ciskei Agricultural Bank (CAB) before 1994. Some of their debt of close to twenty two million Rands was owed to the Katco cooperative. The insecurity of tenure and unpaid debt were factors that made it impossible for the farmers to access credit loans from financial institutions, which was a rampant phenomenon in other similar regions (Magingxa, 2004). At the time of research, the Department of Land Affairs (DLA), a group of more successful white commercial farmers (i.e. Riverside S.A) in conjunction with the Independent Development Cooperation (IDC) were formulating a business plan to establish a partnership venture from which title-deeds could be transferred to ex Ulimocor farmers. Such transfers, it was hoped, would happen at market prices and the venture would act as a vehicle for the farmers to repay their debt (Mbatha, 2005).

It is ironic that while the black citrus farmers struggled, in the late 1990s the South African citrus industry was experiencing a boom with increased and unmet export demands for products in European markets (Roberts, 2005 and Appendix 6). However, because citrus farming was capital intensive and required high financial, land and water resource investments, the more successful farmers were *unable* to develop new land and acquire water assurances at a fast enough rate that would enable them to fully exploit the growing export opportunities. In that regard, the big farmers

⁴² A citrus cooperative in the valley.

proposed to the DLA that in return for assisting the ex Ulimocor farmers with technical, financial and management skills within a business contract signed by government and private investors they would access the underutilised citrus farms to meet the higher output demands. The acceptableness of the conditions of the contract remained uncertain and highly dependent on the levels of trust among various stakeholders at the time of the research. For instance, the willingness of black farmers to change their old and deeply entrenched ways of doing business had to be high enough before contracts could be signed. Incidentally, those were historically and culturally rooted practices. Hence the case study presents:

- a) A history of black citrus farming in the KRV and that of selected and locally relevant public policies, which contributed to the dichotomous business practices between black and white commercial farmers,
- b) A description of local business initiatives, with underlying motives, aimed at improving the local business environment,
- c) A map of current public policy programmes aimed at supporting emerging farming, and lastly
- d) Isolated institutional themes for analysing the feasibility of potential business solutions for the whole KRV citrus industry⁴³.

6.2.2 The black citrus farmers

Officially, within the ‘lease-to-purchase agreements’ between Ulimocor and the black citrus farmers, the former Ciskei government hoped to groom a group of successful black commercial farmers and to eventually allow the farmers to buy the leased land, thus disposing of its micro management responsibilities. Between 2004 and 2005 the farmers claimed that the agreements were intended to last for a period of five years, and thereafter would be reviewed, where a good history of rental payments would automatically entitle them private ownership (Mpukane, 2003 and Nahamba, 2005). The detail information on the farmers’ financial status is presented in Table 6.2 and Appendix 7 indicates their exact locations. As mentioned previously, many of the new lessees originated from outside the KRV, and because their appointments as civil servants were mostly unscrupulous, most of their income was received from outside

⁴³ The actual analysis of the business environment will be performed in chapter seven.

farming activities (DLA, 1998:2). However, the official rationale provided for allocating leases to these tenants was that because they had other income sources “they could afford the lease payments”, as opposed to the poor resident farm labourers (DLA, 1998:6). From this reasoning it would seem that from the start the former Ciskei government did not quite expect the leased-out farms to be economically self-sustaining.

Upon arrival, tensions brewed between the new tenants and the resident ex-farm labourers. The tenants complained that they could not farm the land while the labourers used the farms’ resources. The tensions eventually led to the development of semi formal, semi-urban and relatively high-density areas in Balfour (Map 6.2), to which many, but not all, of the labourers were relocated. Some of the KRV land claim conflicts within the land restitution programme under the Land Reform Labour Tenants Act (3 of 1996) stemmed from this history of relocation (DLA, 1998).

South Africa’s political transition of 1994 meant that the former Ciskei ceased to exist and consequently the Ulimocor offices shut down. In the mid to late 1990s, Ulimocor’s operations underwent a process of liquidation with legal investigations by the Heath Special Investigation Unit (HSIU). At the same, the black farmers (in the KRV and other regions) faced serious financial difficulties; as many could no longer afford the lease repayments of state loans of up to 1.9 million rands, having lost their civil employment in the former Ciskei. Moreover, they had accumulated a lot of debt from financing organisations such as the Ciskei Agricultural Bank and Katco (DLA, 1999:7). In 2005, the DLA had failed to trace and locate records of any rental payments made by the farmers towards other lease agreements since the date of occupation and had failed to trace records of repayments towards any loans. The main reason the records could not be traced was because in 1998 the Ulimocor offices and any records kept inside were completely destroyed by “accidental” fire. Hence, these factors contributed to difficulties faced by the DLA in processing and/or finalising any of the KRV farms’ tenure status (Loets, 2005).

agriculture), that a high potential existed for further land developments. However, it is also clear that with regard to citrus development, at R45 000 per hectare and with production costs estimated at R17 000 per hectare (DLA, 1999), very high investments costs would be required. At reported average income returns of R50 000 per black KRV farm per annum (Roberts, 2005), such development costs would not be affordable⁴⁴. These factors formed part of the explanation why many of the farms stood neglected and in some cases abandoned (e.g. Picardy in Appendix 7 and 8).

Most of the irrigation equipment, i.e. sprinklers, drips, weirs, canals, etc., that were used on the farms had hardly been replaced and/or serviced since the take over in the early 1980s. During visits of farms, which were still in operation, observations were made of canals in disrepair, and pipe sprinklers either leaking or broken. Some of the orchards had not been replanted since occupation. In fact, on farms where production had completely ceased, orchards were used as a source of firewood by farm residents⁴⁵.

Loets (2005)⁴⁶ reported that the growing population of residents, estimated at 355 households, with a total of 1252 of unemployed people living on the farms, had made it harder for the farmers to produce citrus. The residents ran more than 700 cattle and over 500 small-stock on the land. Cases of crop theft had risen to an extent that stolen crop was sold in informal markets. The problems of theft, a growing population coupled with old tensions between farm residents and citrus farmers had led to a local government proposal for establishing a second high-density location near Amherst (refer to point six on map in Appendix 7) (Loets, 2005). Concerns regarding more crop theft were however raised with government officials by farmers living close to the area of Amherst.

Some of the conclusions that could be drawn from these cases were that black citrus farmers were in urgent need of technical and business support. State officials as well as farmers viewed the lack of security of land tenure as the most imperative factor that needed to receive the highest priority. Both parties hoped a resolution on tenure issues

⁴⁴ Related local marking costs are presented in Appendix 6

⁴⁵ A group of former farm labourers that were not moved to high density areas like Balfour

⁴⁶ A chief land planner at the provincial DLA

would enable immediate access to the much-needed financial support from various private and public organisations as well as new business opportunities. Moreover, it was in the interest of the state's policy objectives that the issues be resolved without unnecessary damage to the welfare of emerging farmers. One other motivation for the state's interest and active involvement in seeking a low cost resolution had to do with the welfare of about a hundred employees on these citrus farms and their families who would otherwise become a burden to the state's social security (DLA, 1999:18). In any case, the state of citrus business and associated problems in the KRV did not affect black farmers in isolation. Some of the problems that black farmers were faced with directly also affected the economic interests of their neighbouring white commercial farmers. Hence, some discussion of the white farmers' proposed solutions to problems highlighted are presented in the following subsection.

6.2.3 The documented state of business affairs on white owned citrus farms

It seemed that a business solution to some of the problems facing the former Ciskei farmers had been found in the form a business proposal from Riverside S.A., one of the two white run citrus packing and marketing houses. Hence, an investigation and description of white owned farm businesses, as they affected the case of former Ciskei farmers and the nature of their proposed economic solutions are necessary.

In 1999, the former Ciskei farmers were shareholders of at least twenty two percent in Katco packing and marketing co-operative based in Fort Beaufort (see Map 6.2). It was apparent that it was in the business interests of Katco to seek business solutions to problems facing black farmers, because losses in their output contributions, for instance, if their production were to stop completely, would mean among many things an increase of packing costs to every other member of the cooperative. On the other hand, by ensuring that the black farmers remained in operation, Katco stood a better chance of recovering the R 685 150 owed to it by these farmers (refer to Appendix 7). "Further (Katco held) on behalf of the farmers some six million Rands in funds from Outspan and a million Rands of accumulated bin levy funds. Neither these funds nor the share holding can be liquidated in the sense that a private company (could) apply its funds" (DLA, 1999:11). These were business attachments that made it necessary

for Katco to seek both technical and business solutions to problems affecting its black members. However, solutions to the problems were not only proposed by Katco.

The proposed business solutions by Riverside S.A.

In 1998 another packing and marketing co-operative (Riverside S.A.) was established in the valley, with a shed located just outside the town of Fort Beaufort. The founding members of Riverside S.A. were a breakaway group of white farmers from Katco, who collectively owned more than 300 and managed over 500 hectares of land under citrus cultivation. Riverside S.A., however, was only half the size of Katco in terms of production quantities, and did not have as many members (black and/or white). However, in size and business terms, compared to the former Ciskei farmers, it was by far better resourced and financially successful. Hence, in 2005, four Ciskei farmers, for example Farm Cottage No. 1327 in table 6.2, were under the technical and business mentorship of Riverside S.A. The black farmers also used Riverside S.A.'s packing-shed and marketing networks (Roberts, 2005). During in-farm visits, a marked difference with regard to the maintenance of orchards and infrastructure was observed between black owned farms under the management of Riverside S.A. and the rest of former Ciskei farms (see Appendix 8 and 9).

Riverside S.A. marketed more than seventy percent of its first grade products in European countries, most notably in the UK and Belgium, which meant that throughout the growing season, orchards had to be carefully managed for the trees to bear fruits of the quality required in those markets. To that effect, the company had an ISO 1401 accreditation, which at least on paper, meant that their production processes complied with environmental policy requirements. Financially, however, this also meant that higher costs of production inputs and in-farm management expertise would be required.

In terms of higher export market demands, Riverside S.A. was faced with the challenge to increase its output levels. More land developments and technical expertise were needed for the higher outputs. Alternatively they could acquire more output from their neighbouring farms, such as the less productive former Ciskei farms. The acquisition and development of new land would, however, be more

expensive and risky, especially with insecure future guarantees for water scheduling, taking into account that the Kat Dam’s yield was scheduled at close to a hundred percent – (11.44 of 11.88 million per m³) in 2005. Hence, the alternative option of acquiring output through forming business and mentoring partnerships with a higher number of black citrus farmers seemed more viable (Roberts, 2005). Hence, that was the motivation for Riverside S.A. to draft a proposal for a production schedule of different types of citrus fruit from an additional number of former Ciskei farms (refer to Appendix 6). Such would be done through a new jointly owned company named, Them bani cc. The proposal was pitched for support to the DLA and the Industrial Development Corporation (IDC) emphasising its business strategy of getting the black farmers out of debt. The agenda in Appendix 10 illustrates the proposal’s plan of action. Two critical business conditions were set in that proposal, namely, that: a) the black farmers interested in joining the venture would have to accept to pay market prices, as set by the DLA, for the occupied farms and, b) the black run farms would be wholly managed by Riverside S.A. (technically and financially) until such time that all debt was settled. Figure 6.1 illustrates the business model as proposed by Riverside S.A. The IDC would invest in setting up the new company to be jointly-owned by all groups of farmers. However, it would also act as the ‘custodian’ of the black farmers’ interests, which meant that it would own 49% of Them bani c.c.’s shares on behalf of black farmers. Riverside S.A., on the other hand, would own the rest of the 51%. Once a black farmer had settled his/her debt, s/he would then be allowed to buy a portion of the 49% owned by the IDC (Riverside, 2005).

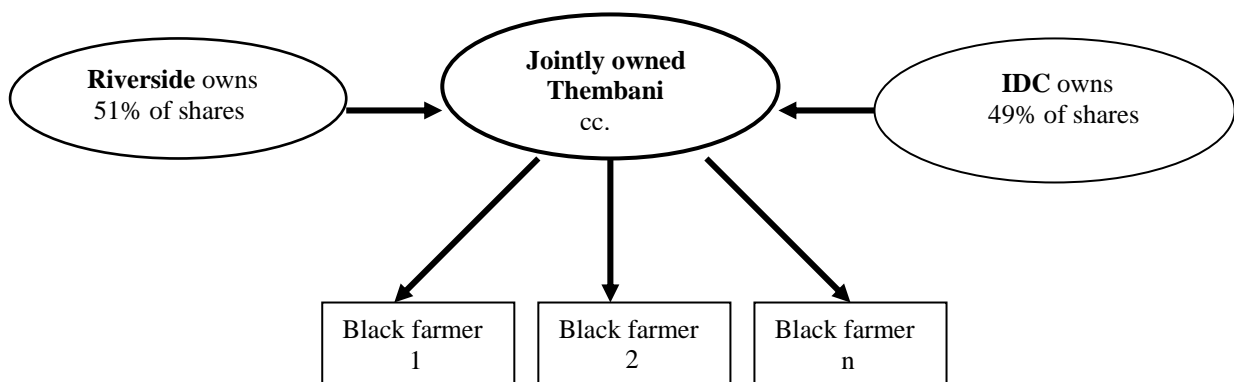


Figure 6.1: The debt-trap exit business strategy as proposed by Riverside (Source: Riverside Enterprises, 2005)

A secondary business idea, still at its inception phase during the time of research, also proposed to the DLA by Riverside S.A. in 2003 was to establish a jointly-owned venture with employees - as an Historically Disadvantaged Group component - forming the majority of shareholders. During that time some of the employees awaited outcomes on land restitution claims, and such land, if received, would be developed for citrus farming. The business motivation for the proposal was that with a black majority shareholding in the venture, Riverside S.A. would provide farming expertise, packing and marketing skills, and the business would have political access to the government's support in the form of grants and subsidies targeted at black majority owned companies. Figure 6.2 illustrates the nature of the proposed business structure to the DLA, and the distribution of risk between Riverside S.A. and its employees with regard to the use of land as collateral. According to the business model, both partners would carry the same weight of such risk.

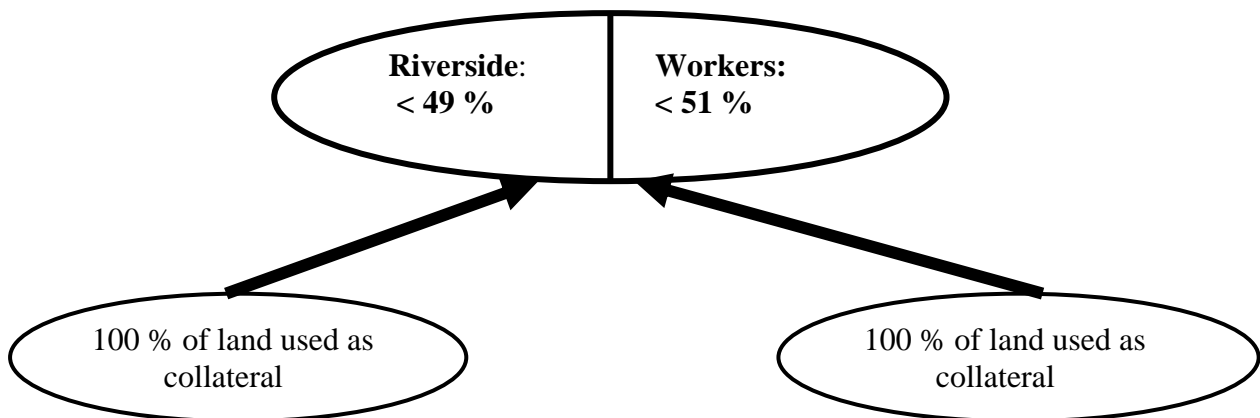


Figure 6.2: The structure of proposed black owned joint venture by Riverside Enterprises. (Source: Riverside Enterprises, 2005)

In addition, Table 6.3 presents the racial employment profile of Riverside S.A. in 2005 and indicates the racial group demographics, which would potentially benefit if such a black majority owned venture were to be successfully established.

Table 6.3 The racial and gender representation of Riverside Enterprises in 2004

Occupational levels	Male			Female			Total
	African	Coloured	White	African	Coloured	White	
Top management	0	0	3	0	0	0	3
Senior management	0	1	3	0	1	1	6
Professional, management, etc.	0	0	0	0	0	0	0
Technicians, academically qualified, etc.	8	4	0	0	4	3	19
Semi-skilled	8	1	1	15	7	0	32
Unskilled	57	0	0	16	0	0	73
Total permanent	73	6	7	31	12	4	133
Non permanent	37	53	0	126	153	0	369
Total	110	59	7	157	165	4	502
No Indians were reported							

(Source: Riverside Enterprises, 2004)

However, the DLA was opposed to the proposal on the grounds of its risk distribution. The 100% use of black owned land as collateral did not conform to the government policy objectives (Loets, 2005). The DLA's policy in supporting any project involving black land owners were to ensure that, increasingly, agricultural land ownership that was redistributed to Historically Disadvantaged Individuals (HDIs) (Restitution of Land Right Act (22), 1994) was at least thirty percent of the total agricultural land over the next fifteen years starting from 2005. Hence, the proposed risk distribution in the venture was seen by the DLA as potentially jeopardising to such objectives. Moreover, the availability of water resources to support new land developments remained another huge unexplored constraint.

The presentation of various proposals in the KRV makes it clear that both Riverside S.A. and to some extent Katco, realised that there potential business opportunities for their own benefit existed in investments in black commercial citrus farming. The cooperatives were actively seeking ways in which such opportunities could be exploited. The economic and political motivations behind the searches, within the national and provincial agricultural policy framework were also made obvious. However, owing to the reported slow progress, and sometimes failures, in realising the potential opportunities, which have been presented thus far, it would seem that the

public policy framework aimed at promoting black farming businesses was not very effective. The following sub-section describes the provincial policy framework, which affected the irrigated agricultural businesses with connections made to the KRV data in illustrating the shortcomings.

6.2.4 The review of agricultural public policies and its relevance to the KRV citrus farming

From the interviews with respective provincial officials of DWAF, DLA and DoA and public as well as internal documents containing policy information on how each department dealt with the developmental process and support for irrigation projects, it was apparent that the departments mostly worked in isolation of each other. However, there was an interdepartmentally endorsed approach to deal with bulk water irrigation projects. With regard to this approach, there was a committee set up comprising of representatives from the various departments, at a provincial and national level, that convened at regular intervals to discuss issues related to irrigation schemes. The recognition that “agricultural production is a multifaceted process and depends for its success on the simultaneous availability of land rights, access to water, access to markets, etc.,” (DWAF, 2002:2) had encouraged the establishment of such a committee. However, the funding for different aspects of irrigation schemes still remained the responsibility of each department. Separate regimes for the management of grants and subsidies for which aspiring and resource-poor farmers could apply were also internally formulated.

From the policy documents and interviews, it became clear that internal and interdepartmental policies, procedures and committee structures concerned with land and irrigated water projects were continually changing, in structure and label. It was obvious that such change had created a number of confusions and uncertainties with regard to an understanding and application of the most appropriate and/or current procedures. In some instances, the same committees were referred to using different names in various documents and versions. For example, the Coordination Committees on Agricultural Water (CCAWs) in DWAF (2002) were referred to as the Coordinating Committee on Small-Scale Irrigation Support (CCSIS) or the Irrigation Action Committee (IAC) in DoA (2005:1). The confusion created by the different

labels was evident when a provincial DLA Chief Land Planner (Loets, 2005) reported to have had no knowledge of the CCAW structure, which according to the DWAF policies formulated the guidelines for approving agricultural grants and subsidies (Mullinuex, 2005). Hence, it could be argued that such structural inconsistencies contributed to the ineffectiveness of the agricultural policy framework for supporting local business initiatives such as the ones proposed by Riverside S.A. in the KRV. Nevertheless, the following sub-sections describe the internal funding policy strategies and grant structures formulated within each of the three departments.

A description of the provincial DWAF support for irrigation projects

It has to be mentioned that even though agricultural policy strategies were formulated and documents were available at the provincial DWAF offices, at the time of the research the position for executing the strategies was vacant. Understaffing and a general lack of human skills at the provincial office as well as the restructuring process within the DWAF were cited as factors responsible for the vacancy (Mullinuex, 2005). Hence, it could be argued that during the research period the strategies existed only on paper.

Nevertheless, in its 2002 strategy document for the *Uplifment and Local Economic Development through the Transformation of State Support for Agricultural Water Use*, the provincial DWAF explained its support strategies. These were aimed at supporting six sub-sectors of agricultural water use to achieve equity, good governance, competitiveness and sustainability. The targeted sub-sectors were:

- a) low risk household production for food security,
- b) market based Small, Medium and Micro Enterprise (SMME) development (of farmers and agricultural service providers),
- c) revitalisation and local integration of former government smallholder irrigation systems,
- d) transformation of commercial parastatal schemes (formerly of Bantu homelands),
- e) land reform beneficiaries that may or may not have access to irrigation water, and

- f) joint ventures between resource limited farmers (or labourers) and established commercial partners.

Four of the policy targeted sub-sectors, namely b,d, e and f, could be found in the KRV and therefore the business initiatives involving the former Ciskei, white commercial farmers and their workers were relevant to the current discussion. According to the policy strategy document, the support for SMME development was premised on the belief that, for black farmers to be successful in farming businesses they had to be independent. That meant that support mechanisms had to be put in place for them to a) adapt to deregulated agricultural markets at a global level, b) to have access to land resources, and c) to have access to the established support industry, as discussed in chapter five.

With regard to commercial agricultural schemes, which were managed by homeland parastatal agencies (for example Ulimocor), the DWAF had earmarked them for privatisation. The department's objective was to support them into becoming financially independent entities. In order to achieve the privatisation goals, plans had to be put in place to:

- a) offer training to farmers in areas of business skills, conflict management as well as farm management, and
- b) build institutional support for farmers.

However, such support would be weighed against the opportunity costs (economic and political) of investing similar amounts of money into other agricultural water uses. Nonetheless, the core policy challenge for the DWAF was to be able to “structure business ventures around the productive capacity on these schemes that would attract (outside) investment and expertise” (DWAF, 2002:8). Considering that most of the schemes were small business units, the policy formulation process recognised the difficulties entailed in trying to make the schemes attractive to external investments.

The DWAF was aware that, historically, joint ventures had been undertaken between black and white farmers in terms of sharecropping, rental and labour tenancy, however, joint ownerships, such as the ones proposed between Riverside S.A. and its employees, for instance, were not as pervasive (DWAF, 2002:9). In creating an

environment for the joint ventures to be established, the DWAF's policy support was aimed at ensuring that black farmers had water rights and land security through grant and subsidy schemes. The grants would enhance the bargaining powers of emerging farmers at negotiations with big commercial farmers and other businesses in establishing joint ventures. Hence, application forms and guidelines for applying for grants and subsidies (see Appendix 11) as well as guidelines for writing business plans and annual reports were available at provincial offices.

On paper the support mechanisms seemed plausible and adequate in meeting the financial requirements of small farmers. To receive funding, all that the farmers were required to do was to write sound business plans and fill-in the right application forms. During the time of the research, a similar channel of support had actually been used by a group of black citrus farmers in the Alice area (outside the KRV) and it was reported that they had received more than a million Rands in the form of grants (Roberts, 2005). It was, however, not clear whether the funds were received only through the DWAF schemes or in conjunction with other support channels from other departments. In any case, a concern was raised that the farmers, who did not have access to the right information on these funding schemes and about how to apply for them, would not be in good stead to receive such support. However, to eliminate such possibilities, the policy stipulated that resources (human and financial) had to be made available to support emerging farmers to access the right information. However, a secondary problem stemming from the availability of this support was that the number of applications for funds was out growing the department's resources (Mullineux, 2005).

With regard to the business initiatives from the KRV, for example the proposed joint shareholding between Riverside S.A. and its workers, the policy guidelines for issuing support grants were not explicit as to whether such initiatives could in fact be supported. Since the objectives of the policy were to keep all supported farmers independent of outside interests, Riverside S.A. would not have been in a position to apply for the grants, as it would hold more than fifty percent (51%) of total shares.

A technical description of the DWAF support

Since the provision of the DWAF grants and subsidies were targeted at the economic development of emerging farmers and female participation, certain policy conditions were put in place in deciding their receipt. Technical requirements in terms of farm sizes and years for which grants could be applied were clearly spelled out in policy.

Mandated by the National Water Act (NWA, 36 of 1998), the DWAF can offer, contingent to budgetary constraints, six different types of grants and subsidies to emerging farmers upon receipt and processing of applications. These are grants:

- a) on **capital costs** for the construction and upgrading of irrigation schemes to farmers who are members of legal organisations (e.g. WUAs). With the grants, consultant services for needs assessments, technical planning and design, water yield studies, legal requirements, economic feasibility studies, etc., can be undertaken (at the rate of the proportional share percentage of annual water allocations) of the beneficiaries in the grantable investment, or R15 000 per scheduled hectare of poor farmer, or R75 000 per scheduled HDI farmer,
- b) or subsidy on **operation and maintenance (O & M)** of waterworks and WRM and depreciation charges, at rate in table 6. 4:

Table 6.4 Phased-out grants on operation and maintenance, WRM and depreciation charges

Years	Grant on O & M and WRM charges %	Grant on depreciation charge (if applicable) %
1 st	100	100
2 nd	80	100
3 rd	60	100
4 th	40	100
5 th	20	100
6 th	0	100
7 th	0	0

(Source: DWAF, 2005e)

- c) for the acquisition of **water entitlements** for irrigation, based on the lowest value of: i) 75% of the minority value water entitlement and bulk water supply, ii) R7 500 per scheduled hectare of water entitlement, and iii) R37 500 per individual member on the water entitlement purchased,

- d) for preliminary or remedial **socio-economic viability** studies, at the following rate: proportional share of beneficiaries, or R500 per scheduled hectare of the beneficiaries, or R2 500 per scheduled beneficiary member,
- e) for **training** of management committees of WUAs or other approved legal entities, at the rate of R1 800 (per management committee per board member per annum) or 90% of the course fees per annum for a total of five years, and
- f) for **rain-water** tanks (an expected 1 000 tanks would be built per annum from the DWAF budget of R 5 million per annum).

A funding formula to encourage a non paternalistic relationship and over dependency on government support by farmers the following formula was used to guide the process:

$$R = \frac{1}{2} (F - C)$$

Where:

R (%): is percentage reduction in total grant

F (%): is percentage of irrigated area on a scheme, which is under control of female HDIs (as decision makers)

C (%): is proportion of female HDIs on the management committee of relevant WUA or other approved legal entity

Therefore, no reduction is applicable to total grant if (C= or > F).

It is clear from the formula that over and above the requirement for female representation on water governing bodies, the value of the grants was also dependent on the area that needed to be cultivated as well as the farmers' own contribution to the total value of the purchase or service. At the start of the projects, a higher level of support was offered (also refer to Table 6.4), which diminished at some rate over time. Moreover, the monetary values available from the DAWF support as presented in presented documents seemed too low to form an adequate financial support for citrus farming, which is capital intensive and generally an expensive activity.

Based on these guidelines and requirements, applying on its own Riverside S.A. would not qualify for any of the DWAF grants. However, it is possible that if they had succeeded in establishing a joint venture with a black shareholding majority as their

workers, they may have been eligible for a fraction of some of the grants, possibly with the risk distribution specifications altered. On the other hand, the black citrus farmers from Alice, as reported (Roberts, 2005), were successful in securing some funding from the DWAF because they were the targeted group for the support and hence they met some of the requirements. With respect to the Thembani c.c., it was also not clear whether the DWAF would have supported such an initiative. In any case, it was the DLA (not the DWAF) that took part in the negotiations to establish this joint partnership venture. It would be interesting for future research to see how the DWAF would have responded to requests for funding the business.

A description of the provincial DLA and DoA policy support for irrigation projects

As mentioned in the DWAF (2002:2) policy, land resources, besides water, form an integral part of multifaceted inputs to the success of agricultural production systems. Hence, the land reform process in South Africa is crucial in the discussion of public policy support for the success of agricultural schemes and businesses.

The reform process had three readily identifiable components in 2005, namely, land restitution, tenure security and the redistribution process. The land reform for agricultural purposes fell mainly within the scope of redistribution, in the programme for the Land Redistribution for Agricultural Development (LRAD, 2005). The scope and objectives of the programme were the transfer of agricultural land resources to specified individuals and commonage projects handled by local municipalities and/or tribal authorities. The LRAD for land transfers to individuals was designed in a manner, which enabled financial grants and subsidies from the DLA to be made available to black South Africans for access to land resources for agricultural use (DLA, 2005:5).

Similar to the DWAF (2002) support policies with aims to discourage a culture of over-reliance on government support, potential beneficiaries had to have their own contributions to the grant totals (i.e. R5000 minimum) before they could receive funding ranging from R20 000 to R100 000. However, compared to the requirements for the DWAF grants, the LRAD programme had more flexible conditions, for

instance, where not only groups could apply for funding but individuals as well. The proposed projects for which grants could be made available included those within the following themes, a) food safety-net projects, b) equity schemes, c) production for markets, and d) agriculture in communal areas (DLA, 2005:5). A sliding scale of grants based on the ‘own contribution’ component is illustrated in Table 6.5.

Table 6.5 Sliding scale of grants at given contributions, as examples for illustration

Own contribution R	Matching grant R	Proportion of total costs (%)	
		Own contribution	Grant
5 000	20 000	20	80
35 000	40 871	46	54
145 000	68 888	68	32
400 000	100 000	80	20

(Source: DLA, 2005:8)

From the table it can be seen that the grant structure was regressive in nature in a manner that favoured poor farmers, for example, the smaller the ‘own contribution’ portion was, the bigger the shares of government grants would be and *vice versa*.

The DoA’s support programme (i.e. the Comprehensive Agricultural Support Programme (CASP)) was, on the other hand, not very dissimilar to the DLA’s. Emphasis was explicitly placed on the support to develop farmers, who were land reform beneficiaries and common land-holders, into independent entrepreneurs. Most of the grants were also offered within the Integrated Development Plans (IDPs) of local municipalities, to promote cooperation between the national departments and local governments (DoA, 2005:2).

The DoA’s CASP grants were offered for the development of agricultural infrastructure, such as fencing, stock water provisioning, stock handling facilities and dipping services, etc. The sizes of the grants on their sliding scale are illustrated in Table 6.6. Compared to the DLA grants they were more lucrative, ranging from R100 000 to R800 000 maximum. However, for these grants the minimum ‘own contribution’ component was also a hundred percent higher at R10 000.

Table 6.6 Sliding scale of grants at given contributions, as examples for illustration

Funding Scale (R)	Own contribution (R)
500 000	50 000
400 000	40 000
300 000	30 000
200 000	20 000
100 000	10 000
(Maximum grant = R 800 000)	

(Source DoA, 2005:10)

6.2.5 The integrated departmental approach (CCAW) to public policy support

The focuses of the DWAF, DLA and DoA grant support systems that have been discussed are on different aspects of irrigation farming. However, since there were overlaps among these aspects, especially with regard to infrastructural funding from the DWAF and DoA, to avoid duplication inefficiencies, a centrally coordinated approach for approving applications was in place. The Coordination Committees on Agricultural Water (CCAW), controlled by the DoA, was a policy initiated interdepartmental forum, whose main mandate was to approve the dispensing of funds, based on the tested feasibility of the proposed projects. Nonetheless, even though in principle the DLA was part of the forum it seemed that their participation on the forum was limited, if not non-existent (Loets, 2005). This point illustrated one possible area in which policy coordination failure in the grants and subsidies policy framework had arisen. Nevertheless, the rigorous procedure through which the CCAW approved applications for project funding is illustrated in the Figure 6.3. The illustration depicts an hypothetical scenario from the point where a community or individual decided to build a scheme or undertake a project to a point where a subsidy application was approved for consideration for funding by the relevant government department.

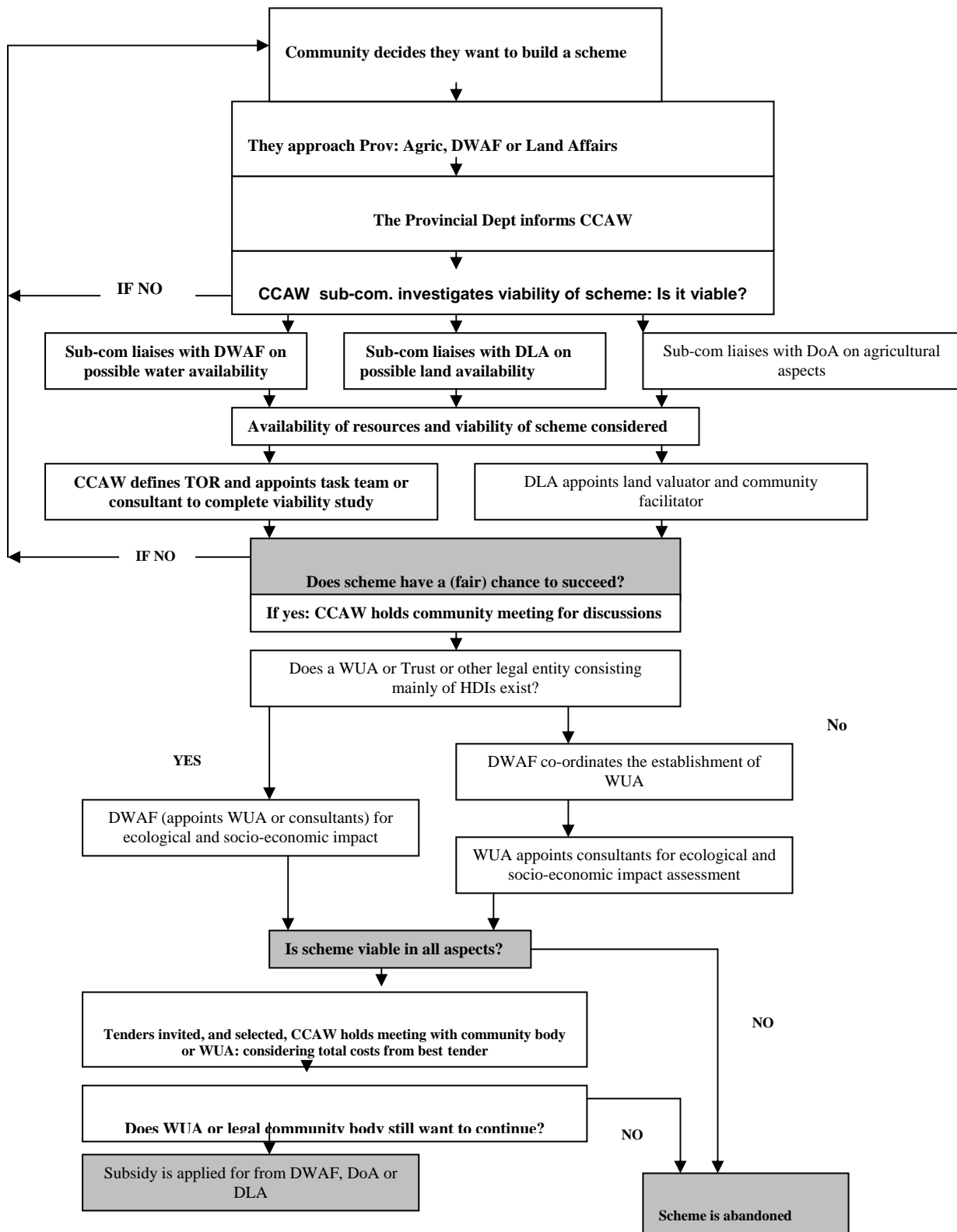


Figure 6.3: Procedural framework approving grants at CCAW (Source: adapted from DWAF, 2005d)

From the illustration, the DWAF played a crucial role in conducting the feasibility studies, through the Water Users Associations (WUA), where they existed. It is also

important to note that even though some other legal entity (i.e. besides the WUA) representing the communities could apply for funding, such an entity would, however, not be able to conduct these studies. Instead, the DWAF preferred to appoint a consultant or establish a new WUA to conduct the study, at a later stage. In the former homelands like the Ciskei and Transkei, where very few WUAs were established, consultants were employed, e.g. Argus Gibbs (DWAF, 2005b) and MBB (DLA, 1999). In the KRV, however, the Water Users Association would be able to undertake feasibility studies in terms of the CCAW's approval process, even though there was no evidence that such studies had ever been conducted. It could be argued that such was the case, because most of the KRV WUA's stakeholder representations were those of big white commercial farmers, where emerging black farmers were under-represented in comparison. On the other hand, the business projects of joint-ventures that were locally proposed were mainly those initiated by large white farmers as private business proposals. Such origins placed the proposals in a peripheral position for consideration using the focus of the government funding policies as yardstick. Those are some of the reasons why the available public funds, it seemed, were not readily applied for or even accessible for the proposed projects that in one way or another had an involvement of black citrus farmers.

6.2.6 Themes for discussion and analysis within an institutional framework

Following North's (1990) definition of institutions as the rules, such as property rights and cultural practice and norms, which are path dependent and which govern human economic transactions, the most useful way to isolate themes for discussion from the case of KRV's black citrus farmers would be one based on history. The documented challenges of economic development with regard to emerging farmers had a historical trajectory. Hence, the descriptions of these businesses and social challenges should be well complemented by presentations of their historical origin/s. On the other hand, the proposed business and policy *solutions* from local large commercial farmers and government also had a historical path that needs identification.

The reported *underdevelopment* of black citrus farms may have owed part of its origin to South Africa's past policies, which promoted unequal development, i.e. the Natives Land Act (27 of 1913), however, the resilience of the *status quo* may be partly

explained by inherited *institutions of corruption*. These originated from or flourished in the former Ciskei homeland. The settlement of citrus farmers in the KRV was not based on objectives to achieve fully efficient economic outcomes, but mostly on *political patronage*. The farmers became the last settler group in the valley, and with other *commitments outside* the farming activities, such as civil service, they could not have had fully *vested interests* in the successes of the farm units they suddenly occupied. The fact that they occupied the farms within easy or even seemingly unenforceable repayment arrangements was a further disincentive to ensure that the farms were run on successful economic terms. Furthermore, the inefficiency of the repayment arrangements between the ex-Ciskei government and the farmers ensured an inheritance of *insecurity of tenure and high debt*. The discussion showed that the lack of tenure later prevented farmers from having *access to external financial support*, for example from private banks, which in turn prevented business developments but on the other hand ensured that farmers remained in their increasing debt. Such is a classic illustration of a *poverty trap*, which is self sustaining in a similar manner described by North (1990) in a discussion of sustained economic under-development, even with *high transaction costs*, in some third world societies.

At a social level, the black citrus farmers, as a new group of settlers in the valley, were not very welcome by the local farm residents, who were previously farm workers. The *growing population* of the residents became an additional obstacle in the farms' day-to-day production activities, with reported growing *thefts of crops*. Such social problems even led to the establishment of high-density settlements in the area. However, since many of the residents continued residing on the farms, probably because of the farmers' *lack of ownership rights* to the land, which may have entitled them some legal leverage to expel unwanted dwellers, the challenges from the cohabitation remained obvious. This *social problem* contributed to the *sustainability* of underdevelopment of KRV's black citrus farmers.

The proposed business solutions from *internal and external* actors, like Riverside S.A. and the Department of Land Affairs (DLA) also had historical origins and attributes of *embedded-ness*. Firstly, the actions by Riverside S.A. were clearly those of *rational* economic actors. The deregulation of international markets in the early 1990s had opened growth in horticulture, which encouraged growing citrus *export demands*. The

need to expand production outputs to meet these increasing demands, within a favourable exchange rate environment, was the main motivation for the business proposals for *partnerships* with under-utilised black farm units and for further land developments where such was likely. With Katco (the main local competitor) not actively seeking to use its relationships with black farmers, it seemed logical for Riverside S.A. to attempt to secure future outputs by forging partnerships that would strengthen its future competitive positions. Secondly, the DLA in its attempts, a) to settle the black farmers' land debts, *inherited from the former Ciskei*, and b) to support the development of emerging farmers as prescribed in current policies, its actions were in the main a *reaction* to past institutional and political challenges. Where some of the motivations from both Riverside S.A. and the DLA coincided with *mutual benefits* to be had, it seemed solutions were most likely to be found, for example, in the establishment of Thembani c.c. However, where the Riverside S.A.'s business motives were not complementary to some of the policy objectives, such partnerships were not supported by the DLA, irrespective of whether they made any economic sense. For example, the proposal to form a business partnership with Riverside S.A. employees was not supported by the DLA based on 'dubious' risk shares.

With the exception of the reported case of black farmers from Alice, the external policy support from other government departments, like the DWAF, seemed to be out of touch with locally proposed solutions. It seemed that, a) the KRV environment did not readily lend itself to the possibility of generating government policy oriented solutions, and b) the policy formulation process was not based on information pertaining to the black and/or white farmers' needs and vested interests at a local level. In the main, the potentially available funding from government agencies was not being applied for because the requirements and conditions put in place for applications did not match the business development needs of citrus farmers on the ground. Hence, an argument that *policy coordination failure* had occurred could be put forth for this particular case. Nonetheless, as irrelevant to the condition of black citrus farmers the presented public policies seemed to have been, their formulation was still rooted in history. They were concerned with the national development of emerging farmers, as a group that was historically disadvantaged, despite the fact that

they may not have been the most appropriate for the KRV activities during the time of research.

It is interesting and important to note that while it seemed that Katco had an economic premise to support the development of its black members, for instance to help them repay their debt to the cooperative, there was little evidence to suggest that this was done or planned. Perhaps Katco as a group of many more farmers had a *more diverse internal voice*, which landed itself in conflicting perspectives on how to approach the development question when compared to Riverside S. A., which was *smaller and a lot more cohesive*. Nonetheless, the case showed that even though there were potential economic incentives and opportunities for Katco to be part of the development process of black citrus farmers, the mentioned factors on their own were not enough to catalyse the process. There is likelihood that an external agent would have been more suitable to perform that function.

Flowing from a consideration of the KRV black farmers, some of the questions that may have needed urgent answers in the policy formulation processes aimed at developing emerging actors from historically disadvantaged backgrounds were as follows:

- a) Would it be highly likely for such emerging farmers to draw sound and independent business proposals to meet the policy standards aimed at promoting economically sustainable businesses without external assistance or partnerships?
- b) Would it ever be possible for most outside support, from successful businesses, to come forth without vested private interests and conform to most policy conditions?

If answers are mainly 'no' for at least one of the questions, then some of the policy requirements for applying for funding from government agencies may need some alteration. For instance, the promotion of independent black-run businesses at any stage of the development process may need reconsideration.

The foregoing discussion isolated several themes from the case study that need a rigorous interrogation using the institutional framework. It would be helpful at this stage to point out the ways in which the themes were not only embedded in history

but also how they functioned in an interconnected manner to an extent that it would not have been possible to find a successful solution/s that did not have a holistic approach to the challenges of the citrus farming community as whole. The interconnectedness⁴⁷ and the loop mechanisms with which some of the themes affected the development process and communicated with one another are illustrated in Figure 6.4.

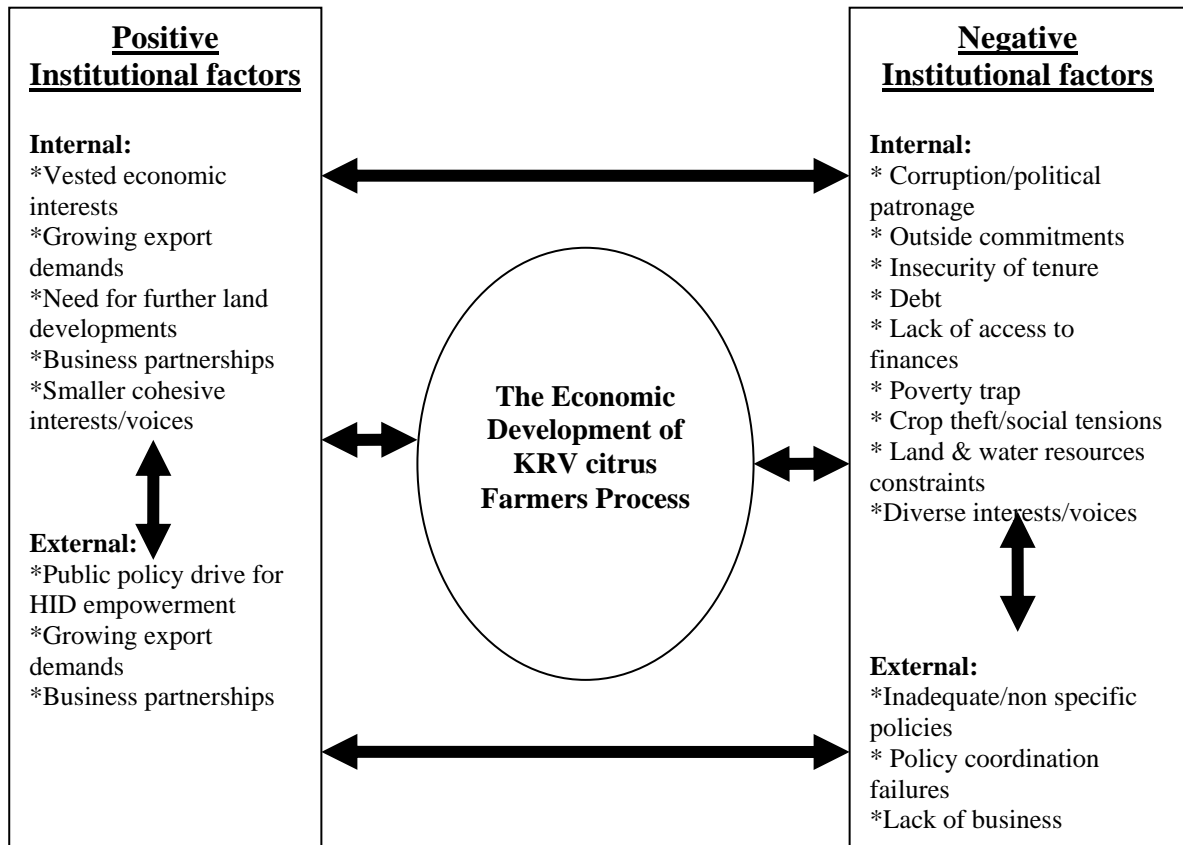


Figure 6.4: The interconnectedness of institutional factors affecting the development of black citrus farmers

As illustrated in the figure, not only are the factors affecting the KRV's development process, but they also affect one another internally and externally. For instance, the external environment of growing export demands was not only contributing positively towards the KRV's citrus industry, but it also generated interests to form business partnerships, both at local and national levels. Hence, an argument for interventions

⁴⁷ It is also worthwhile to note how the lessons from the case study could also be related to Hirschman's (1960) discussion of the urgent need to consider coordination as crucial in policy formulation to deal with complex conditions required for development processes to take off.

(i.e. public policies and business initiatives), which are sensitive to such interactions, is illuminated. In chapter seven a more rigorous interrogation of factors depicted in Figure 6.4 will be presented within an institutional framework, which was discussed in chapters three and four.

6.3 A CASE OF WATER ABSTRACTIONS USING THE ILLUSTRATIVE PHYSICAL EXTERNALITY MODEL

6.3.1 Introduction

The Kat River is the main tributary of the Great Fish River (see Map 6.3). It is also a watercourse from which water is diverted individually by irrigators. In such a watercourse, and as discussed in chapter three, Bromley (1982) proposed that economic externalities exist due to: a) different levels of water quantities available to farmers located at different positions in the watercourse, and b) increased levels of uncertainty in production at downstream locations. Higher levels of water quantities and lower levels of uncertainty exist at upstream positions, which entails that downstream positions are progressively disempowered both politically and economically over time. These institutional postulations were investigated by profiling three groups of commercial irrigators situated along the Kat River, identifiable by their geographical locations and socio-economic conditions. These were the Middle and Lower (downstream) large commercial farmers and subsistence farmers, who were located upstream (see Map 6.5). Bromley's (1982) postulation of unequal distribution of economic and political power which favour upstream located farmers was supported by the 2005 evidence from the Middle and Lower Kat locations, however, it was *in fact* ironic that the most disadvantaged (in economic and political terms) of the KRV farmer groups was one located upstream (i.e. in the Upper Kat). However, historical and institutional factors presented in the case study could explain most of the deviation. Evidence also showed that the Lower Kat group was to some extent disadvantaged in terms of productivity and political power when compared to the most successful group, which was located at a relatively more upstream position in the Middle Kat reaches. The Middle Kat farmers appeared to have a competitive advantage over other groups in terms of water assurances as well as political influence on decision-making institutions such as the KRV Water User Association (WUA). Therefore, most of the KRV data on large commercial farmers conformed to Bromley's (1982) theoretical expectations, but this was not the case with regard to subsistence farmers who were located in more *advantageous* areas in terms of water resource availability.

The case illustrates that the institutional effects of political interventions, South Africa's *water* and *education and training* policies of the 20th century had a

considerable role to play⁴⁸ in influencing and explaining, especially, the deviation of empirical data from the postulations. For instance, the political creation of the former Ciskei government, which was discussed in the preceding case study, led to a decline in levels of productivity of the Upper Kat reaches, and it ingrained both ethnic and racial conflicts over resources and a lack of business as well as practical farming skills. These were in addition to years of unsustainable poor education policies for black schools as implemented by South Africa's apartheid government, which did not seem to improve during the former Ciskei rule⁴⁹. The effect of riparian water rights of 1956 (Mbatha, 2005) were restricted land developments for business purposes in the Middle Kat reaches, with tensions growing between the Middle and Lower Kat farmers around water and land resource allocations. The culminating effects of these factors were the inefficient irrigation and business practices which contributed immensely to the underdevelopment of the whole KRV area as observed between 2004 and 2006. Hence, it could be argued that, perhaps, in affecting large commercial farmers, the remedial redistributive policies presented in the preceding case study, which are concerned with agricultural resources like water (e.g. the National Water Act (NWA, 36 of 1998)) would be appropriate for the present case study if their main aim were to alleviate uncertainties in business decision-making processes. With regard to subsistence farmers of the Upper Kat, however, the policies would have been more effective if they focussed more on transferring skills through formal and informal channels in the form of effectual educational programmes and business mentoring schemes. Such mentoring schemes could be achievable through the business partnerships proposed in the previous case study. This is the case simply because the redistribution of water resources and infrastructure would mean technically nothing to emerging farmers who did not have the capacity to exploit the resources.

In section 6.3.2, the Physical Externality Model will be presented within the Kat River Valley's geographical context. Past and present water allocation policies and practices in the KRV will be described in section 6.3.3. The Upper KRV's institutional challenges to development will be discussed in section 6.3.4. Section 6.3.5 will

⁴⁸ Alongside explanations from 'formal hypotheses'.

⁴⁹ In the 2004 KRV household survey the reported average time of formal schooling in the Upper KRV was four years.

identify the themes for further analysis using the institutional framework presented in chapters three and four.

6.3.2 The investigation of KRV farmers using the Physical Externality Model

The Physical Externality Model (PEM) postulates that geographical positions of farm units along a watercourse in which water is diverted individually give rise to technical inefficiencies that adversely affect production outputs of downstream farmers, *cet. par.* (Bromley, 1982). Data from various studies in developing countries, for example Mexico and Sudan, indicate that farm units, which are located at upstream positions, tend to be bigger in size and their owners tend to have a sizable political influence on the decision-making institutions that govern water allocations and output market prices. Such inefficiencies arise mainly because of *uncertainties* with regard to how much water would be available for the next cycle of production. Over time, the culture of water abstractions because of initial uncertainties becomes *resistant to change* (i.e. path dependent), which may be initiated through external intervention. They become institutionalised, which is an illustration of *path-dependency*. Figure 6.5 illustrates the phenomenon, where in a watercourse uncertainties intensify as one moves from the most upstream (A) to the most downstream (B) location.

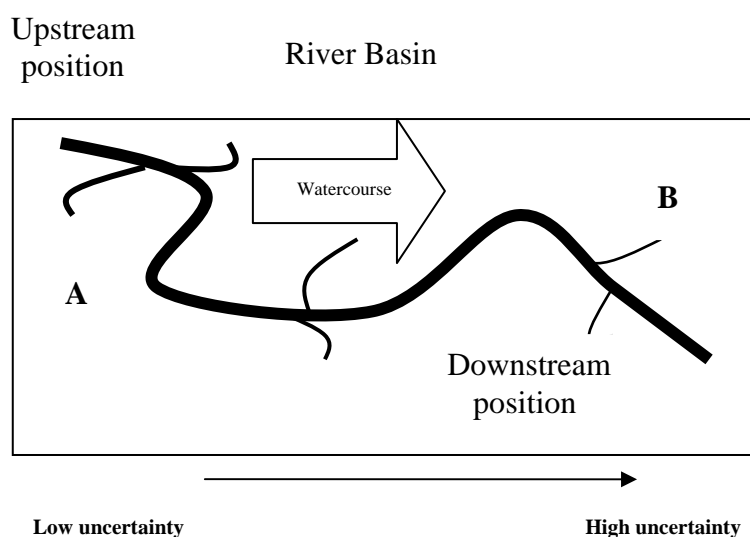


Figure 6.5 A watercourse with individual water abstractions

According to the PEM, the farmer located at B is economically disadvantaged compared to the one at position A. This is because his/her decisions with regard to

production inputs, especially water resources, are dependent on how much water is abstracted upstream by farmer located at A, hence how much water would be available to him/her. In the model it is assumed that farmers are naturally *risk averse*, hence the downstream farmer's (i.e. B) allocated budget for production inputs - within the environment of uncertainty - would be even more conservative and therefore incrementally sub-optimal.

In Figure 6.6, these allocative (production) inefficiencies are illustrated using the General Equilibrium of Welfare Economics. An Edgeworth Box diagram is used, where finite levels of water inputs are represented on the horizontal axis and all other inputs on the vertical axis. The figure depicts an abstract 2 x 2 economy with only two producers (A and B) and two inputs (water resources and other inputs), however the discussion results extend to an n-sector, n-farmer economy.

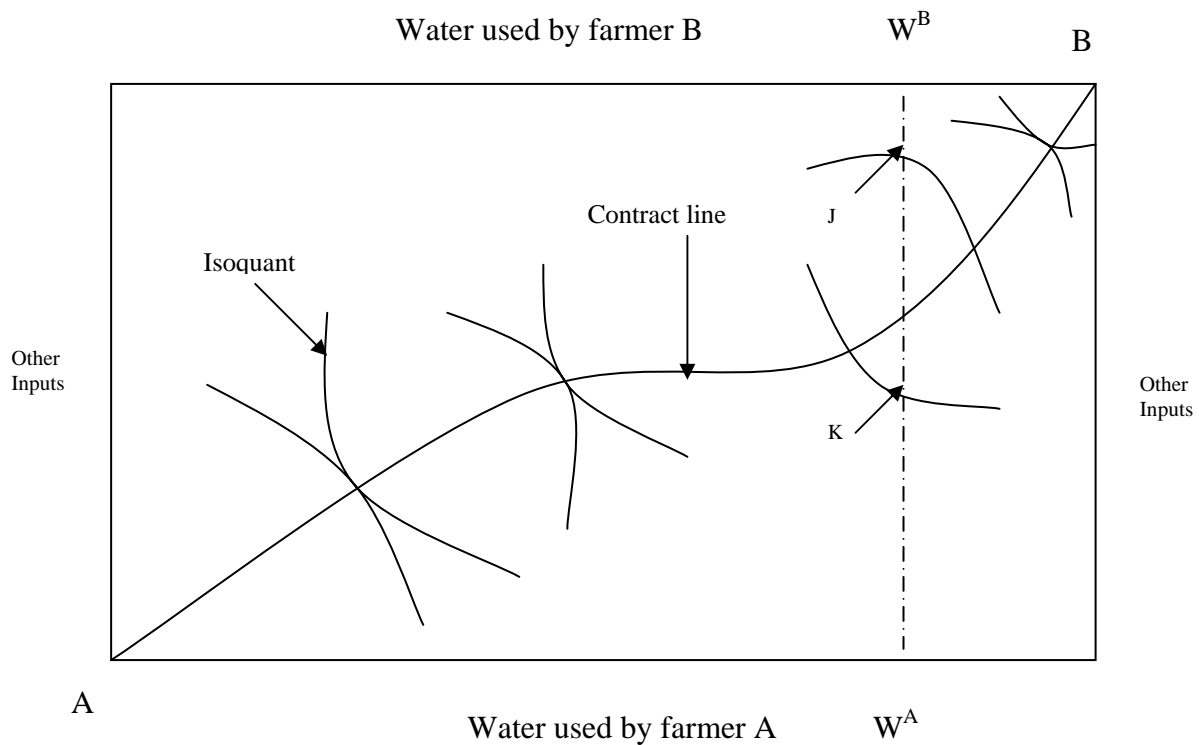


Figure 6.6 Inefficient resource allocations in agricultural production
Source: Bromley (1982:13)

The PE model also postulates that after bargaining processes between the farmers (economic actors) and after allocation decisions have been made on production inputs, due to prevailing uncertainties, farmer A ends up producing at point K, and B at point

J. Such positions, as end points, are inefficient, because they lie outside the contract line (AB), which in this theory depicts *Pareto* efficiency (Black, *et al.* 2005:17-19). Moreover, farmer B's share of total resources ends up being much smaller than Farmer A's, as s/he operates at a much lower *isoquant*. This is another illustration of the economic dominance of upstream farmers, which also translates into (and is being reinforced by) political dominance. Once again the institutionalised nature of inequitable distribution of resources and power is illustrated.

What in essence the model highlights are the adverse effects of *information asymmetries* that prevent the formation of efficient production markets, leading to sustained inequalities. It is the geographical design of the watercourse that lends itself to such market failures. In addition, the reliance of farmers on past experiences (past production cycles) in decision-making processes with regard to available production inputs for future cycles is further illustration of their risk-averse nature. Over time, the experiences become part of an ingrained institutional rule, which is also self-regulating, that govern the behaviour of the whole farming community (Bromley, 1982). The discussion of such rules conforms to North's (1990 and 1992) conceptualisation of institutions, which were presented in chapter three.

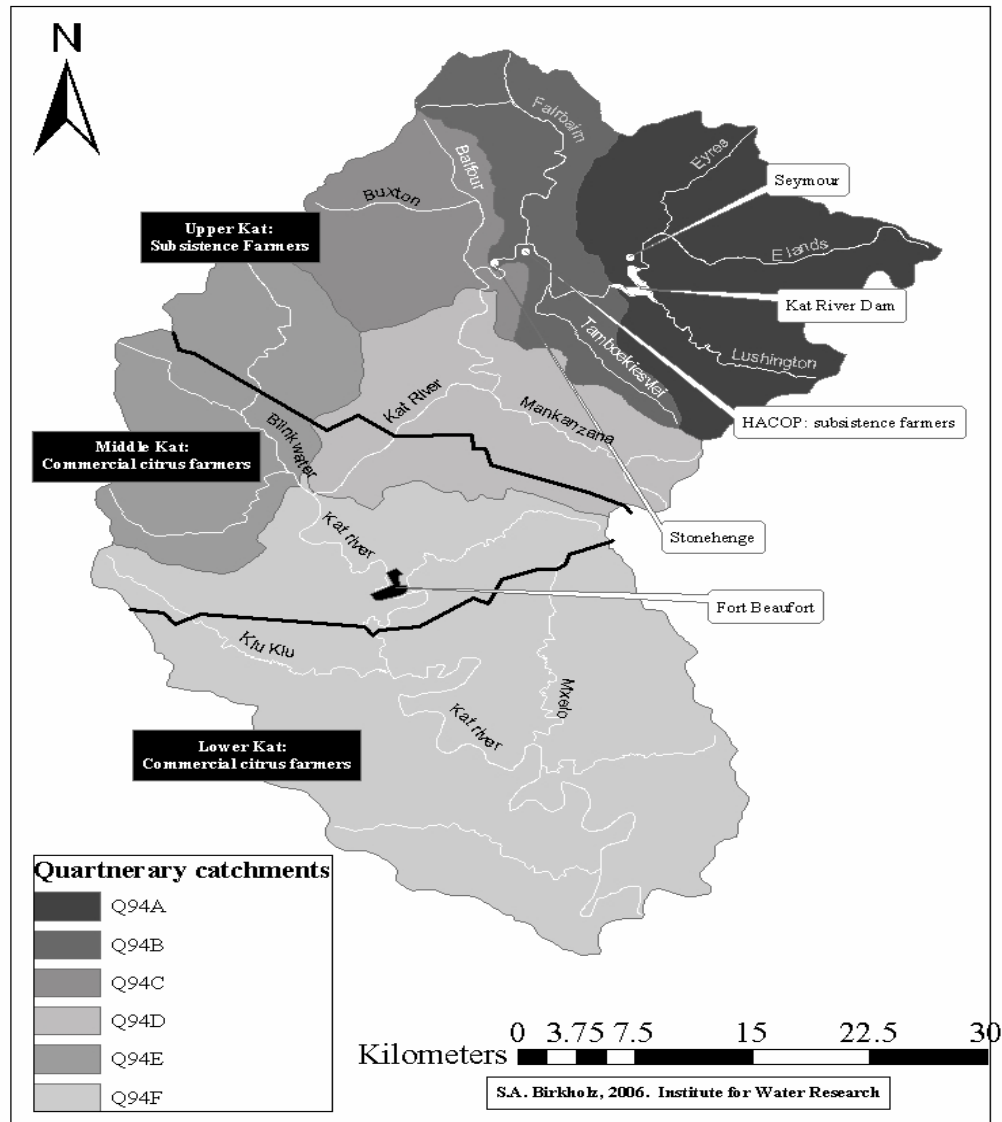
A description of the Kat River Catchment within the PEM framework

In 2005, large individual farmers, small irrigation schemes and household users either diverted or abstracted water from the Kat River system, which in Map 6.4 runs from the Kat Dam (north-western location) towards the town of Fort Beaufort (south-central location). The dam itself, located south of Seymour was built in 1969-70 with a storage capacity of $24,892 \times 10 \text{ m}^3$ and an assured yield of $11.88 \times 10 \text{ m}^3$ per annum (Magni in Motteux, 2002). This capacity extended water security to approximately 1600 hectares of water scheduled⁵⁰ land over three years (DLA, 1998 and Painter, 2005). The Kat River was the major watercourse from which water was abstracted for various uses in the KRV, however, other streams in quaternary catchments⁵¹, for example the Blinkwater and Balfour systems in Map 6.4, which are tributaries to the

⁵⁰ Water scheduling is a system of riparian rights under the Water Act (54) of 1956 where access to water rights was given on the basis of land under cultivation. After the rights were conferred to a farmer, s/he was not allowed to develop further land for irrigation.

⁵¹ Indicated with various shading in Map 6.4.

Kat, formed the secondary water sources from which additional quantities were available.



Map 6.4: The Kat River and its tributaries (alternative sources of water)

Irrigated citrus farming required the highest share of total abstracted water quantities. Other less water intensive irrigation uses, especially by small farmers in the Upper reaches, were for staple vegetables like cabbages, potatoes, etc, which was indicated in section 6.1. Depending on total land area under irrigation on each farm or scheme, various amounts of water were abstracted. Table 6.7 illustrates these agricultural uses, by land area and position from the most recent and comprehensive study done in the KRV catchment (KDOR, 1989). The reaches in the first column refer to a division of

the KRV into seven sections using the most significant water diversions (i.e. weirs) from the Kat system, as illustrated in the Appendix 12.

Table 6.7: Areas under cultivation in each river reach (ha), 1989

Reach	Citrus	Tobacco	Vegetables	Pastures	Other	Total
1	4		37	7		48
2	264			37	14	315
3	131			7		138
4	246					246
5	21	185				206
6		127				127
7		47				47
Total	666	359	37	51	14	1127

Source: KDOR (1989)

From the Table 6.7, citrus cultivation was by far the most prolific agricultural activity, covering over 60% of the total land area under cultivation. In 1989, tobacco was the second biggest crop cultivated at more than 30%. In 2005, however, some of the land uses and the extent to which they were prevalent as presented in Table 6.7 had changed. For instance, tobacco was no longer extensively cultivated as it was twenty years prior to the research period, and some of the citrus farms in the Upper Kat reaches were no longer operational as was presented in the preceding case of black citrus farmers. In fact, the total land area of uncultivated or idle farms in the Upper Kat reaches was approximately 764 hectares in 2004 (KRV WUA, 2004). On the other hand, in the Lower Kat reaches (the section below the town of Fort Beaufort in Map 6.4) more land (i.e. 884 hectares) without water scheduling, had been developed for citrus production from the time when the Kat River Dam was constructed. Hence, Table 6.7 can only be indicative of what could be grown and what has been cultivated in the history of the KRV catchment.

Table 6.8 illustrates the 2005 development of land areas for citrus production exclusively. The total amount of land areas under citrus cultivation had more than doubled from 666 hectares in 1989 to 1142 hectares in 2005. It can also be seen from the table that citrus cultivation without water scheduling rights (i.e. water supply security) was higher at 884 hectares compared to only 682 hectares of cultivated scheduled land. The business and institutional implications of such citrus cultivation, without water security, are discussed in detail in the forthcoming sections.

Table 6.8: Estimated land areas under citrus cultivation with and without water scheduling (hectares)

Total land with scheduling	Total land with scheduling but not cultivated	Total land with scheduling and cultivated	Total area under citrus cultivation	Total land without scheduling and cultivated	Communal land and villages with scheduling *not used
1600	918	682	1142	884	764
Note: The information from various sources (e.g. technical government documents, land register, KRV WUA reports) used in collating the estimated land sizes was self contradictory, hence the table is only indicative of the magnitudes of land used for different purposes.					

Adapted from DLA (2005)

The construction of the Kat River Dam, for water security, was itself necessitated by problems of intermittent water shortages as experienced at various times in the history of the catchment. There were instances of severe water shortages even long after the dam had been constructed, for example the droughts of 1983 and 1991 (Roberts, 2004). Interestingly, the shortages contributed to severe alterations of the dam's operational rules as well as *heightened tensions* among groups of irrigators over levels of water quality and supply. The nature of these tensions is discussed in more detail in the forthcoming section.

Located immediately below the Kat River Dam, at upstream positions, small irrigation schemes were operated by villagers whose water needs (because of limited agricultural activities and scale thereof) were significantly lower than any of the other irrigation groups at more downstream locations. The land areas under regular irrigation per small scheme in 2005 ranged between five to ten hectares (e.g. Hertzog, Fairbain, Stonehage, etc.). In Map 6.4 the area where many of such schemes were located is identifiable as the Upper Kat. Below the schemes down to the Middle Kat reaches, were the former Ciskei black farmers, whose detailed history of settlement into the valley and discussion of potential business opportunities were presented in the preceding case study. In any case as indicated there, each of those former Ciskei farmers irrigated between ten to forty hectares of land (DLA, 2002). The Middle and Lower Kat reaches were populated by large white commercial farmers, who also owned most of the scheduled as well as non-scheduled land areas, and controlled the allocation operations of most of the water from the Dam (Mbatha, 2005). For

instance, the Painters, located in the Middle Kat owned, and/or leased land areas in excess of 900 hectares, comprised of eight separate farms, and had the capability of pumping to 100 000 litres of water per hour from the Kat River (Painter, 2005). The Middle and Lower reach farmers in varying degrees also controlled the quantities and times at which water would be flushed from the Dam (KRV WUA, 2004). The land and water registers of the DLA (2002) and DWAF (2005f) listed the distributions of land ownership and water resource use by sub-area and by farm owner from which it was clear that private access, especially to water resources, was concentrated in the Middle and the Lower Kat reaches. Hence, *contrary to the PEM postulations*, such data indicates that most of economic and political power and leverage along the Kat system were located at relatively more downstream positions.

Moreover, the distribution of business institutions that governed water resource allocations and enabled market access mirrored the economic and political distributional patterns. For example, the large commercial farmers in the Middle to Lower reaches had direct access and representation in the KRV's Water User's Association (WUA)⁵². In 2005, the small schemes in the Upper Kat reaches had minimal to no meaningful representation in the KRV's WUA (Ntsebenza, 2006)⁵³. The downstream commercial farmers (including the black citrus farmers) had access to the two big and privately and cooperatively run *packing and marketing* Riverside S.A Enterprise⁵⁴ and Katco. In contrast, the most significant marketing institution supportive of the small irrigators was the Hertzog Cooperative (Hacop)⁵⁵, established in 1994 with support from the Department of Agriculture (DoA) and the DLA. Between 2004 and 2006, however, some of the members of the scheme reported chronic internal leadership conflicts, lack of business skills and financial difficulties (Mbatha, 2006).

The conflicts were over access to water resources and quality among big commercial farmers, which are elaborately documented in the KRV WUA's records of meetings

⁵² The association was transformed from being the KRV Irrigation Board in 2001 (KRV WUA, 2001).

⁵³ The attendance register in minutes of the KRV WUA (2004) meetings convened in the last three years is also evidence for this point

⁵⁴ Although the Riverside S.A. Enterprise cooperated with other producers, legally however, it was a private firm.

⁵⁵ The cooperative, even though it was still operative, had shrunk in actual size and activity. A detailed historical study of the cooperative is presented in the next case.

from 2002 to 2004. On the other hand, the conflicts were over resources among small schemes centred around leadership roles and access to land and not so much on water resources (DWAF, 2005e). These observations seem logical in the light of acutely varied production activities and outputs from the different sections of the KRV and farming groups. Serious conflicts over bulk water supplies could only be expected to arise after rights to land resources use had been secured, sound management structures put in place, and considerable production outputs achieved. None of these variables were positively represented in the Upper Kat.

What is readily relevant to the application of the PE model to the KRV data is that small schemes occupied the most advantageous position on the watercourse (i.e. they were located just below the Kat Dam in Map 6.4). In that regard, the geographical occupation of the most advantageous locations by small farmers, which was associated with a lack of economic and political power, contradicted theoretical expectations, *cet. par.* The observation was also inconsistent when compared with empirical evidence reported from other developing country cases like Mexico and Sudan (Bromley, 1982:7-17). In those cases, small and poorly resourced farmers with insignificant political power occupied downstream positions, which would be expected in line with theoretical postulations. However, as will be discussed in the forthcoming section such inconsistencies only applied to the small schemes and not to big commercial farmers in the Middle and Lower KRV.

Given some of the KRV data's deviation from theoretical expectation and international data, the next section lays down a foundation for an institutional discussion, which describes the historical developments and associated effects of irrigation policies and practices (as observed in the KRV) for fuller and better understandable explanations of observable *status quo*. In addition, the discussion forms a basis for presenting and analysing the tensions among large commercial farmers (of the Middle and Lower Kat) in attempts to secure permanent water allocations (KRV WUA, 2004). It is argued that the tensions, even within a group of relatively successful farmers, contributed to sub-optimal utilisations of land and water resources and therefore to some extent to the general underdevelopment of the whole catchment.

6.3.3 The water allocation policies and practices in the KRV

The idea of constructing the Kat River Dam near Fort Armstrong was first motivated in 1940 (Painter, 2005), however, the dam was eventually built below the town of Seymour with funds from the DWAF in 1969. Arrangements for the maintenance of the construction costs were formalised with farmers who accepted *riparian water-scheduling rights*. Such arrangements entailed monthly payments by farmers for the rights as well as charges for the dam's maintenance. When the dam was constructed the majority of the valley was already under extensive citrus cultivation and this has remained the case as illustrated by Tables 6.7 and 6.8 (DLA, 1998).

As reported in the previous case study, the majority of agricultural land, besides commercial forestry in the Upper KRV, before the former Ciskei homeland was established in 1971, was owned by white farmers and was also under citrus cultivation. Anecdotal data from farmers, for example Roberts (2004) and Palmer (2005) presented a picture of *relatively successful farms* prior to the establishment of the *homeland system*. The establishment led to the *relocation* of white farmers from the areas that were incorporated into the former Ciskei. With high water assurances, the Upper KRV prior to 1971 was not as significantly different in economic terms from the Middle and Lower reaches as would be observed almost thirty-five years later in 2005. The Upper Kat farms, including those that were no longer in operation in 2005, still *had associated rights* to almost half of the initial amounts of water scheduling, i.e. 764 of 1600 hectares illustrated in Table 6.8 (KRV WUA, 2004). With those political developments, which rearranged the *geographical boundaries* and subsequently the business positioning of farms, the watercourse was itself not physically reconfigured to conform to the new physical boundaries of the post 1971 era. Hence, the early operational rules of the dam applied *inside and outside* of the former Ciskei borders. The DWAF in collaboration with members of the then Kat River Irrigation Board were responsible for laying down the rules for allocating *water releases* to scheduled as well as non-scheduled irrigators (De Villiers, 2005; Painter, 2005). Some aspects of the rules and requirements for meeting the full annual irrigation water needs of the valley are summarised in Table 6.9.

Table 6.9: Monthly water releases (Mm³) from Kat Dam required to meet the full irrigation and domestic requirements

Water Releases Per Month												
Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Year's total
0.73	0.92	1.81	2.52	1.50	0.91	0.78	0.64	0.54	0.49	0.57	0.61	12.06
Other components contributing to total annual flows												
Irrigation water requirement									10.04			
Domestic water requirement									1.72			
River losses									4.36			
River flow below Kat Dam									4.06			

(Source: KDOR, 1989:14)

Table 6.9 indicates that more than sixty percent of water releases were allocated to meet irrigation requirements and that higher quantities were released in the early parts of the year, i.e. January and February. Because citrus harvesting usually takes place between the months of June and August, it makes sense that the lowest releases occurred during that period of the year.

De Villiers (2005) emphasised that in 1969 farmers did not know for certain how the water scheduling would affect future business operations. Even though the relatively high assurances of water supplies seemed attractive, the *restrictions on further developments* of land for citrus production, which came with accepting the scheduling rights, were not very attractive. Hence, not all farmers, especially those located downstream of Fort Beaufort, applied for such scheduling rights. On the other hand, the farmers located above the town of Fort Beaufort did not face the *option* of remaining non-scheduled if they were to continue production, since water abstraction and pollution discharges had to be controlled above the town. The idea was to ensure that enough water, and of good quality, from the Kat River reached the town of Fort Beaufort (De Villiers, 2005).

Farmers located downstream of the town, for example the Jeba Trust farms in Table 6.10 reported that even though some of their counterparts wanted to be part of water scheduling, for instance C. Painter and E. Mildenhall, the *nature of the system* prevented them from doing so, because their upstream neighbours had declined any scheduling rights. Such was the case because in a geographical system where

irrigators abstract water individually, as illustrated in Figure 6.5 it is impossible for farmers located downstream to prevent non-scheduled upstream-located irrigators from harvesting any water that was not legally due to them. During 2004 and 2006 downstream-located farmers, whose forebears had wanted scheduling but could not have it, continued to voice their dissatisfaction around the issue of their *technical exclusion* against their preferences (Mildenhall, 2004). The dissatisfaction became one of the recurrent themes in many of the tensions and/or conflicts between the Middle and the Lower Kat groups of farmers as illustrated in the minutes of the Water User's Association meetings (KRV WUA, 2004).

The reported water allocation tensions/conflicts

Data on the relative sizes of farms in the Middle and Lower Kat reaches, with and without water scheduling, above and below the town of Fort Beaufort as well as water extraction pumps, boreholes and reservoirs are presented for each identified farm in Table 6.10. It seems that while the scheduled farmers opted for *lower risks* with regard to water security as noted in previous sections and Table 6.8, the Lower Kat farmers had, over the years, taken the *risks of investing* vast amounts of resources into developing non-scheduled land for citrus production, for example the Bath Farm Trust. Such land investments were made with low water assurances. The seemingly high-risk behaviour of these non-scheduled irrigators may also have been indicative of the *high returns in citrus* production in general. On the other hand, and as illustrated by the availability of *secondary streams* in Map 6.4, the behaviour may also be indicative of the general abundance of water resources and high competition in the valley.

These alternative sources of water, which were available to some of the Kat River farmers, for example boreholes and other streams, are also presented in Table 6.10. It is interesting to note that the number of water storage reservoirs, weirs and boreholes was *proportionately higher* in the Middle Kat, where higher water security was also better guaranteed through scheduling rights. It is unclear from the data whether this point illustrates a more exaggerated *risk-averse* nature of this group of farmers, or merely their short-term *rational economic behaviour* in maintaining their competitive edge owed to advantageous geographical locations.

Farmers from the Lower Kat section confirmed that enough water resources were available to irrigators, especially rainwater that was harvested for storage on farms (e.g. Mildenhall, 2004). However, it was clear from interviews that such claims, despite their untested veracity, formed grounds for this group to argue for higher water releases from the dam, which was effectively under the control of scheduled farmers.

Table 6.10: Farm ownership and associated water scheduling

Enterprise name	Reach	Number of on farm reservoirs	Scheduled hectares	Citrus cultivation	Weirs and pumps	Boreholes
Riverside	Middle Kat	4	337	285.7	8	n/a
Glen Muir Trust	Middle Kat		61	50	1	n/a
Y. Brown	Middle Kat	3	5	30	1	4
Maqoma	Middle Kat	N/a	24.5	21	n/a	n/a
Knotts	Middle Kat	1	N/a	15 and 19	1	2
D. Smith	Middle Kat		11.5	20	0	n/a
Ronnie Smith	Middle Kat	2	N/a	0	0	2
Total⁵⁶		10	439	442	11	8
Bath Farm Trust	Lower Kat	3	0	111	2	1
Umdala Trust	Lower Kat	N/a	0	0	n/a	n/a
Jeba Trust	Lower Kat	N/a	0	66	2	n/a
JP Mildenhall	Lower Kat	N/a	0	63	n/a	n/a
Charlgrove Trust	Lower Kat	3	0	36	2	1 of 3 is used
Total		3	0	276	6	4

(Source: KRV WUA, 2004)

Regarding the tensions between the Middle and Lower Kat farmers, most downstream farmers argued that the periodical *water releases* from the dam had become *too restrictive* and as such unwarranted (refer to Figure 6.7). This was also based on the perception that water resources were generally in abundance from other sources in the valley. Such an argument formed probably the biggest point of contention in water allocation issues between the Middle versus Lower Kat groups.

If indeed there were abundant water resources available from secondary sources, it did not make sense that scheduled farmers operated and kept the dam at *over ninety percent capacity*, as indicated in Figure 6.7, even with the assumption that the group

⁵⁶ From the data presented in table 6.10, the Middle Kat farmers have a higher number of reservoirs, boreholes, weirs and pumps and land under citrus cultivation than the Lower Kat farmers. However, the data cannot be used to conclude that the individual Middle Kat farmers are more economically successful than their Lower Kat counterparts, firstly, because the data does not represent all farmers in the KRV (i.e. it is incomplete) and, secondly, a higher proportion of Middle Kat farmers is represented in the table (i.e. 6.7 to 6.8). However, based on the predictions of the Physical Externality Model, it would be expected that the Middle Kat farmers are more successful. What table 4 does show clearly, on the other hand, is that without any form of water scheduling (i.e. risk cover), the Lower Kat farmers have heavily invested in land development for citrus production.

was highly risk averse. However, the complaints from downstream farmers about the too stringent releases were also unwarranted at one level. For instance, they claimed that they did have *enough alternative water* available to them from other sources. Therefore, it can be concluded that the conflicts and tensions surrounding water releases may have been, to a large degree, motivated more by *future uncertainties*, and by rational *strategic behaviours* as opposed to real threats of water *shortages*. Another observation was that, as operated in the period between 2002 and 2005, the KRV Dam's water resources seemed to be in *inefficient usage*, i.e. far below its capacity at sixty percent and hence outside the contract curve, which was depicted in the Edgeworth box in Figure 6.6.

In addition, and as supported by Bromley's (1982) discussion, the *past experiences* of droughts in the area could also be used to explain some of the rational, *albeit* inefficient and risk-averse, behaviour as displayed by the politically powerful farmers. Besides the availability of water resources from alternative streams, downstream farmers had available to them the option of *buying water releases* from the Kat River Dam whenever they needed to do so. That was the case provided that the dam's water levels remained above some threshold, formally determined at sixty percent in this case, as *set by scheduled* farmers. This threshold and other rules governing the flushing of the river per requests from non-scheduled farmers have, however, *changed*⁵⁷ over time. Such is indicated in the differences between the stipulated rules in the KDOR (1989) document versus data obtained from the KRV WUA (2004). Mildenhall (2004) and Roberts (2004) reported that the experiences of the *two major droughts* of 1983 and 1991 had contributed immensely in changing the rules governing the flushes to becoming *more conservative*. Prior to 1983, the Kat River Dam's water levels were less restrictive and not as regularly monitored, which was the reason why during the drought periods the dam's capacity easily dropped to an alarming *five percent* (Mildenhall, 2004). Thereafter, scheduled farmers formally agreed that the dam would never be allowed to drop below its sixty percent capacity represented by the dotted line in Figure 6.7. Nonetheless, all farmers (including the scheduled ones) agreed that the dam's maintained water levels in the recent years, as depicted in Figure 6.7 and the decisions on the frequency of flushes in general had

⁵⁷ If they ever applied that is.

become even *too cautious*. For instance, for the 2002 to 2005 period the dam was maintained at an average of close to ninety percent capacity (the solid line in Figure 6.7).

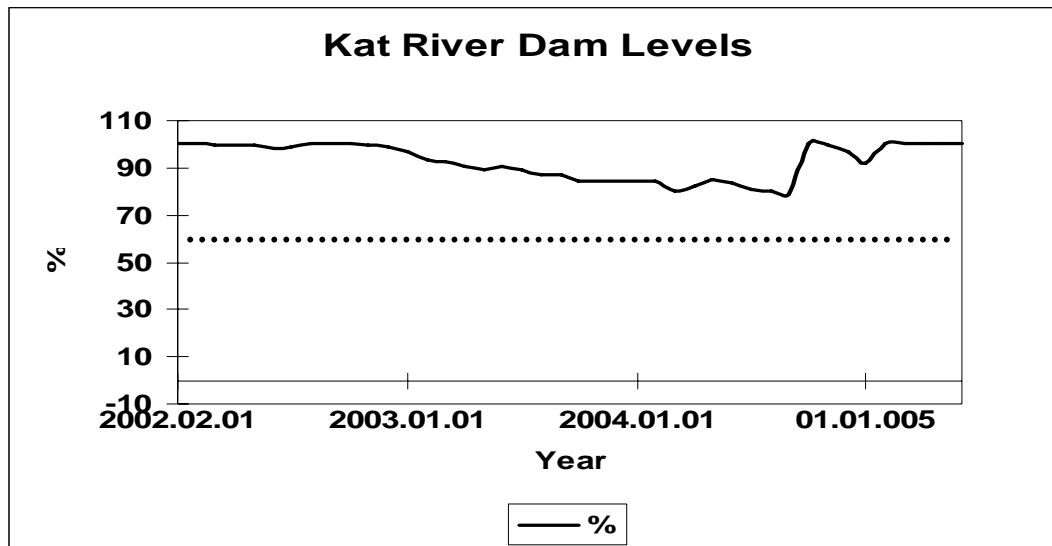


Figure 6.7: Kat River Dam water readings 2002 to 2005
(Source: DWAF, 2005f)

Upstream farmers (e.g. Roberts, 2004), however, still argued that because of the crippling effects of the drought experiences of 1983 and 1991 the formal rules were somehow still justifiable, whereas the downstream group (e.g. De Villiers, 2005) as expected indeed described the *rules* as *tools* used merely for the *advancement* of upstream operations. Bromley's (1982) assertion that farmers often base their production decisions on historical experience is supported by the 'drought explanation' in this case. However, the severity of actual water restrictions, at ninety percent capacity, with its associated production inefficiencies, it seems needed a better explanation and could only be explained outside the Physical Externality Model's assumptions.

The foregoing discussion presents cases of conflicts in seemingly deep-rooted mental and formalised institutions (rules and practices), whose adoption over time and practical application have unfortunately led to an inefficient allocation of resources. The Physical Externality Model could explain *most of the events* and phenomena as presented by the KRV data on interactions between the Middle and Lower Kat farmer groups. It is clear that in most instances the Lower Kat farmers operated at the mercy of the Middle Kat farmers however sub-optimal the production outcomes may have

been. In the following section, KRV data from the Upper Kat reaches are presented and discussed with institutional explanations on why data from this section of the KRV provides deviations from the model's basic postulations, *cet. par.*, that upstream located farmers are bigger both in terms of economic and political indicators.

6.3.4 The Upper KRV's institutional challenges to development

In the Upper Kat reaches, there were two emerging irrigation schemes that were operational in 2005, namely, the Hertzog Agricultural Cooperative (Hacop) and Stonehage (Map 6.4). *Community members* established the Hacop scheme in 1994 with support from the DoA. The scheme was the bigger of the two and it was located at a more *upstream position* closer to the dam. As mentioned in the background section, the schemes predominantly produced staple crops, such as cabbages, potatoes, butternuts, etc., for local markets like the Alice Fresh Produce Market as well as *for local* consumption (Ndzotho, 2005).

In 2004, the Fairbain branch of Hacop was the only wing that remained productive ten years after the establishment of the scheme. The branch operated as a *breakaway group* due to internal leadership conflicts. On the other hand, the Stonehage scheme was relatively new and had been revived by the local Nkonkobe Municipality for cotton production⁵⁸ in collaboration with Da Gama Textiles⁵⁹ (Ndidwa, 2005). Both schemes had a membership that fluctuated between twenty and fifty farmers, depending on the level of financial and other type of support offered by *external agencies* such as government departments and NGOs.

The Hacop scheme had held a ten-year lease agreement to use land of 73.8 hectares from the DLA between 1994 and 2004. The lease *expired* during the research period. It is also useful to note that in 1994 Hacop was established within an unstable environment of South Africa's political transition, when *racial tensions* were heightened at a national level and at a time when there were no clear indications regarding the political direction the country would take as a whole. With the emergence of a 'new democratic' government there was a vacuum left at a regional

⁵⁸ In the KRV WUA minutes from the meeting of the 4th of December 2003 a reference is made to the proposed Stonehage cotton scheme.

⁵⁹ A national textile manufacturer.

level because of the 1994 collapse of the former Ciskei homeland. At a local level, white farmers who had been hired as agricultural consultants by the former Ciskei government were also leaving the area amidst *contractual uncertainties*, taking away with them human resources that had facilitated and sustained some of the Upper KRV's economic activities (Nel *et al.*, 1997). This history would provide some explanations for a number of social and leadership tensions that would emerge within the scheme at a later stage. In terms of the availability of input resources, the scheme's water rights, like those of the Middle and Lower KRV farmer groups, were also registered with the DWAF. However, according to the KRV WUA's (2004) water accounts, the scheme had fallen far behind on its *monthly payments*. In addition, after the time when the land lease had expired, with unsuccessful attempts at being renewed, in terms of the law the scheme had begun *operating illegally* (Loets, 2005).

Hence, during the data collection period, more than ten years after the scheme had come into existence, the following challenges were most frequently mentioned;

- a) uncertainties existed pertaining to land use rights and to a lesser degree with regard to water access,
- b) broken down irrigation equipment, because of infrequent servicing, were reported and observed,
- c) a lack of expansion plans and/or directions for future business operations were noted,
- d) internal leadership squabbles presented probably the most frequently cited difficulty facing the scheme, but
- e) even more serious was an observed lack of human, technical and business skills for expanding future agricultural and business operations (Ndzotho, 2005; Njobe 2005; Mpevana, 2005, etc.).

In fact, with regard to a lack of *human capital*, it was reported that the average number of school years for subsistence farmers in the Upper KRV was only four years, compared to downstream commercial farmers who, on average, reported a minimum of some *technical training* and/or tertiary education (Mbatha, 2005). Such a lack of capital resources and human development formed the foundations on which most of the institutional constraints facing the Upper KRV farmers were pivoted.

The nature of Upper Kat's institutional inefficiencies

The challenges identified in the Upper Kat were hardly related to water resource allocations or access to land resource use (whether illegal or otherwise). Hence these could not be directly linked to the postulations and immediate discussion of the Physical Externality Model. This meant that the types of economic inefficiencies as identified in the Upper KRV had little to do with a *physical endowment* of natural resources like water, but were mostly of a human development nature as discussed by Sen (1982) and were also institutional in the form that is described by North (1992) where *cultural practice* dependent on history was observed to have *detrimental effects on future economic development* of the scheme. Even though the Upper Kat had the highest share of the water resources in terms of water scheduling and geographical positioning, the area remained the most underdeveloped section of the KRV. Hence, it was illustrated that even though the Physical Externality Model was quite useful in explaining some of the economic and political disparities and suboptimal use of resources that characterised the Middle and Lower Kat farmers, the Upper KRV's economic inefficiencies and the gross levels of underdevelopment remained somewhat *outside of the model's explanations*. This observation also highlighted the postulation by McCloskey (1990b) that formal approaches, as often applied in the discipline of economics, when required should be *supported by other forms of explanation* grounded on social-science investigative methods for a more complete understanding of economic events.

From the PE model's application in the KRV's agricultural resource allocations, the lack of human skills in the Upper reaches had a predominant negative effect on economic development such that most of the *external support* (e.g. financial) that was offered to the schemes in fact *counteracted* some of the potential gains. For instance, an *over reliance*⁶⁰ on external support was restricting possible internally initiated growth. In these cases, it would be noted that a redistribution of tangible resources, such as water resources and infrastructure, as legislated under the NWA (38 of 1998) and as promised in provincial departmental policies, which were presented in the case

⁶⁰ Which could easily become institutionalised.

of black citrus farmers or the distribution of agricultural resources as advocated by Faysse (2004), *on their own*, would have minimal impacts on the overall empowerment of emerging farmers like these.

Quite simply, the lack of human capital in environments similar to the KRV came about because of years of South Africa's (and the former Ciskei's) poor developmental and educational policies. Their effects could not be investigated through simple economic models such as the PEM or remedied overnight merely through redistribution policies, but by an *historical understanding* of the rules and practices as influenced by *human skills* development (or lack thereof), which would affect economic outcomes either positively or negatively.

6.3.5 Summary of isolated themes for further analysis using an institutional framework

Various historical events in different parts of the KRV led to a development of important institutions, not only for the allocation of water resources among farmers along the Kat River but also for the economic development of each farming group in the valley. These institutions were also central to ensuing tensions and conflicts of interests among farmers. Some of the historical events were catalysed by external political policies and led to a formation of formal rules and practices, which were observed locally. However, some of the events were incidental, for example the droughts of the early 1980s and 1990s. These types of events for the main part led to an establishment of informal rules and cultural practices, which became institutionalised. In this section the various institutions are isolated and highlighted for further interrogation and analysis in the forthcoming chapters.

The riparian and water scheduling rights were key in devising formal rules that not only facilitated the allocation of water resources between up and downstream farmer groups, but access to these rights also guided the land developments for citrus production that took place at later stages. The case study illustrated that the economic and political characteristics and tensions of the Middle and Lower KRV farmers originated and pivoted around the ownership of these rights. The Middle KRV farmers were bestowed power to make decisions on water allocations by their access

to water scheduling rights, which entailed facing lower water insecurities for business as opposed to the Lower KRV farmers who did not have the same power and security of the resource. However, the effects of the ownership of rights were twofold. The rights also limited the potential land developments of the Middle KRV farmers, and hence some of their economic growth relative to their downstream counterparts. These contradictory effects added to the rise of many conflictual institutions between the two groups.

The effects of the scheduling rights on the postulations of the Physical Externality Model were, however, not clear. Even though the KRV data on the Middle versus Lower KRV farmers conformed to the theoretical expectations of more politically and economically empowered upstream farmers, the contributions to these demographic differences by the scheduling rights was not certain. It was, however, apparent that the uncertainties that came about because of a lack of water assurances heightened the levels of risk averse behaviours of downstream farmers. However, such potentially negative effects on economic growth must have been counteracted by the growing high export returns reported in the citrus industry in the late 1990s (Vink and Kirsten, 2002). The case was clearly illustrated by the vast land developments for citrus production that took place in the Lower KRV reaches.

On the other hand, it was also noted that even though the Lower KRV farmers had restricted access to the Kat River's and the Kat Dam's water resources, secondary streams and rainwater were available and formed somewhat adequate alternative sources of irrigation water. As such, the growing exports and alternative water sources became the driving factors for the land development investments, which were observed in the Lower KRV. Ultimately, the tensions and conflicts among the Middle and Lower KRV farmers were not only explainable by competition for water resources from the Kat River system but also by the strategic behaviours of self-interested actors in the citrus industry.

Indeed the reported drought experiences modified the rules and practices of especially the Middle KRV farmers with regard to the dam's operations, where the threshold for maintaining the dam's water capacity was increased and set at sixty percent. However, the dam's levels at over ninety percent observed in the recent years seemed

too extreme and exaggerated for justification by such experiences alone. Hence, once again the strategic rational behaviour hypothesis was readily evocable.

In any case, among other things the case study illustrated that the formal Physical Externality Model (on its own) was only partially able to explain the economic and political *status quo* of the KRV social system. In fact, even among the Middle versus Lower KRV farmers, the formal and informal institutions that had historically evolved to govern the water allocation practises and business operations were much better at explaining most of the reported and observed economic events during the research period. Ultimately, whatever the explanations and their sources may have been, it was apparent that agricultural inputs such as water and land resources were being used inefficiently in the KRV. The observation was in support of the PEM's conclusions for this type of a watercourse.

Once again the creation of the former Ciskei homeland, which was an externally initiated political event led to the relocation of many of the white farmers who were located in the Upper KRV. Their removal did not only have negative economic consequences for that section of the valley, but also modified the social and business institutions that were prevalent in the presence of white farmers. When these farmers relocated they took away with them their relatively successful farming practices, and this is one of the important explanations for the reverse in development of the Upper KRV farms, which was observed during the research process.

The external interventions which established new political boundaries with the establishment of the homeland suddenly created different institutions, which were observed on different sides of the political border with regard to the use of agricultural resources and business practice. That became the case even though both sides were in effect part of the same geographical river basin. Hence, the records of the KRV WUA illustrate that different levels of observation and adherence to formal rules existed between the Upper versus the Middle and Lower KRV farmers. Not only were the Upper KRV farmers under represented at meetings of the WUA, but the records revealed that they also did not regularly make their monthly payments for the dam's maintenance and operation in the same way that the Middle and Lower KRV farmers did (KRV WUA, 2004).

In fact, even though the Upper KRV due to its upstream location was expected to be the most prosperous section of the valley (using the PEM postulations) the farming business conditions in the area were seriously poor and almost dysfunctional. The land usage for irrigation purposes by the schemes was illegal, because the ten-year lease they had signed with the DLA had expired and there was no prospect of its renewal. Of the three branches, which originally formed part of the Hacop scheme, only one was still operational, namely, the Fairbain unit. The chronic lack of human skills among farmers ensured that the servicing of equipment and business management activities were inadequate, if not nonexistent. Hence, most of the marketing of products from the schemes was targeted at low profit local markets. It also seemed that in the absence of capital and financial support from external agencies, the farming activities would have actually come to a halt. On the other hand, it seemed ironic that the very support, which was received from external agents, and which sustained any farming activity that took place, was also the reason why potential and locally initiated efforts at self-improvement were stifled, because of entrenched paternalistic institutions that were established between the locals and outside agencies.

The following chapters will discuss and analyse the highlighted themes from the case study using an institutional framework as set out in chapter three and four. The incorporation of a formal model like the PEM was helpful in explaining only some the economic events especially in relation to the Middle and Lower KRV farmers. However, for the most part the historical description and outline of political and social institutions, which were relevant to the various KRV sections under investigation, were more useful in providing fuller explanations of themes isolated for further investigation, theoretical discussions and policy recommendations.

6.4 A HISTORICAL CASE STUDY OF THE UPPER KRV FARMING BUSINESSES

6.4.1 Introduction

According to Eicher (1999), small agricultural initiatives in Africa are characterized by a history of failure, mostly because the institutions in which the projects are established are not favourable for economic sustainability. The case study outlines a history of a prototypical African project (the Hertzog Agricultural Cooperative, Hacop), from which a number of narratives of successes and failures have been documented in past research reports and papers. At its inception in 1994, the project displayed a great promise of success that some researchers described as uncharacteristic of typical projects in similar contexts (Nel *et al.* 1997).

In the case study, formal and informal institutions that were identified as having affected the economic performance of the initiative are discussed for their respective harmful and positive contributions. Even though 1994 was a year of high political uncertainty in South Africa, some members of communities in the Upper KRV villages, in which the project was located, could still recognise a possibility of establishing an economically viable irrigation project. It is ironic but also logical that some of the political uncertainties were actually perceived by the founding members as opportunities to appropriate farming resources for personal gain. Many of the resources were abandoned by the consultancies contracted to the former Ciskei government in the collapse of the homeland system in the country.

On the main, however, poor leadership skills and a lack of business acumen, which remain a legacy of South Africa's political history, as well as growing uncertainty with regard to the direction of new land public policies and security of tenure, eventually led to a gradual decline of the project's business activities within the ten years of its activities, which is documented here.

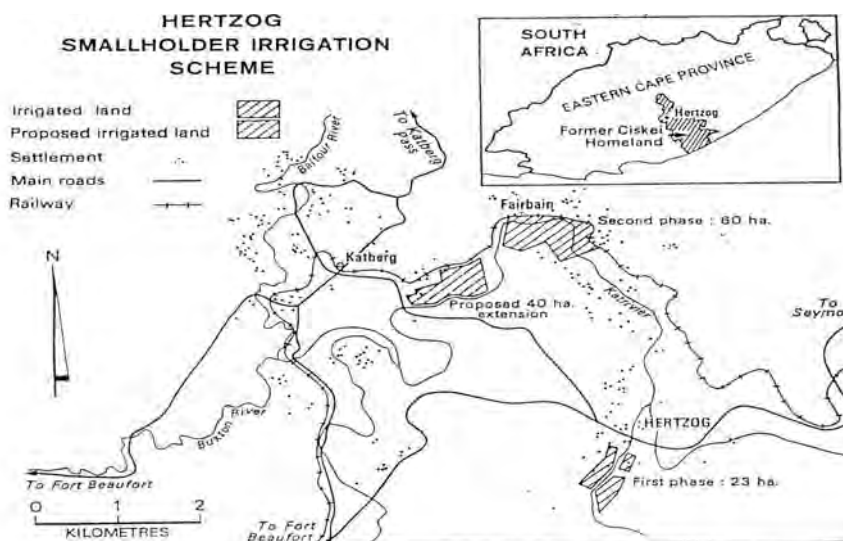
The study outlines the most notable events, which were thought to have contributed significantly to the project's economic and political challenges. The events were the result of actions of either individuals or external agencies, as well as the incompatibilities of social and business norms, rules and practices within which the scheme was forced to operate. The study also evaluates the efficacy of possible

interventions aimed at influencing the project's performance in the medium and long term.

In section two the geographical locations of the irrigation scheme and surrounding villages are presented. The early history of Hacop and developing difficulties facing the scheme are presented in section three. The scheme's business operations as observed between the years 2004 and 2006 are presented and discussed in section four. Section five discusses the political and leadership challenges. Finally, themes are isolated for an institutional analysis in section six.

6.4.2 The geographical location

When the Hertzog Agricultural Cooperative (Hacop) was established in 1994, it operated in the rural villages of Hertzog and Fairbain. The villages are found in the Upper KRV in Map 6.5).



Map 6.5 Hacop and its villages in the former Ciskei

(Source: Binns *et al.*, 1997:863)

The two villages contributed twenty-three and sixty hectares of irrigation land to the cooperative respectively. Some forty hectares of land in Fairbain were also identified for future development. However, even though only two villages contributed land resources, residents from Phillipton (Northwest of Fairbain in Appendix 13) were also

invited to be part of the cooperative. These residents worked in Fairbain until 1996 when more land was acquired for irrigation in Phillipton (Ntsebenza, 2006).

Black and Coloured Africans, some of whose forebears settled in the area during the 1900s, form the main racial groups in the population of the villages. In 1996, the population of Hertzog alone was reported at 1000 individuals in 100 households. However, in 2004, the population of six of the upper KRV villages was reported at over 5000 individuals. High unemployment rates were also reported throughout the 1990s, and in 1996 the official figure stood at forty two percent (Nel *et al.*, 1997: 59), while in a 2004 research survey the rate was at over sixty percent (using the broad definition) (Mbatha, 2005). Hence, the establishment of Hacop with its early success was mostly welcome by residents as it provided employment opportunities as well as subsistence crops (see Appendix 14).

The following section outlines the history of the cooperative by, a) identifying and discussing significant and historical events between 1994 and 2004, and b) by discussing marked actions of prominent figures in leadership positions.

6.4.3 The early history of Hacop

Hacop was established in 1994 with members of the community of Hertzog being the most instrumental in the venture. The initiative was remarkable in the perceptions of development researchers in light of South Africa's political and economic history, where rural communities, like Hertzog, were subject to repressive economic policies under the homeland system (Nel *et al.*, 1997:273-274)⁶¹. In the same year, the cooperative was expanded to include members of the nearby villages of Fairbain and Phillipton in Map 6.5 and 6.6.

It is useful to note that it was mainly two members of Hertzog community that were key figures in the project's establishment and in its early success⁶². The two helped in the drafting of the project's constitution in Appendix 3, and with assistance from

⁶¹ South Africa's new political dispensation and the available land and irrigation resources are believed to have provided some motivation for residents to pursue locally based agricultural solutions to high levels of poverty (Nel *et al.*, 1997).

⁶² These were Mr E. N. Nkayi and the late Mr C. Meyer

Ulimocor they secured a land lease⁶³ agreement for irrigation purposes from the Department of Land Affairs (DLA). In an informal arrangement, Ulimocor allowed the scheme members to use the irrigation equipment, which was abandoned by its farming consultancies (Ntsebenza, 2006 and Hacop, 2006).

Contrary to Nel *et al.*'s (1997:274) claims that state land resources around the three villages had been fallow from 1979 until 1994 as a consequence of the former Ciskei's lack of sound agricultural policies, the scheme members corrected the notions saying that the land, with irrigation equipment, was only finally abandoned in 1993 (Hacop, 2006). That was only a year before the establishment of Hacop. In fact, besides the Ulimocor consultancy run projects, other white South African farmers had leased some of the land from the Ciskei government for tobacco and vegetable cultivation between 1987 and 1993. However, with the collapse of the former Ciskei and the ensuing political uncertainty, precipitated by the country's first democratic election to be held in 1994, those white farmers also abandoned that land, with its equipment, without giving notice to workers (Ntsebenza, 2006).

In addition to acquiring the abandoned resources, Hacop was also reported to have secured a loan from a commercial bank, whose money was used to develop further about sixty one hectare plots in addition to the initial twenty three hectares. This brought the total size of land under cultivation to eighty three hectare units (Nel *et al.*, 1997:275). In any case, since its inception point, the majority of Hacop's cultivated and irrigated land, at over 60 hectares (ref. Map 6.5 and 6.6), and abandoned equipment were found in the Fairbain village. That is probably one of the reasons why in 2006, the Fairbain unit of Hacop remained the only active branch (Hacop, 2006).

Challenging developments at Hacop between 1994 and 2006

Because no cultivation whatsoever took place in Phillipton prior to 1994 and hence no land was abandoned and immediately available to work on, the inclusion of the village into Hacop meant that the dwellers would travel daily to work the Fairbain

⁶³ From the 2004 meeting, Hacop members reported that the DLA lease was for ten years; however, at a 2006 Hacop workshop some members claimed the lease was for eleven years commencing in 1995.

plots. In 1996, however, more land in Phillipton was leased to Hacop from a relative of one of the scheme members. This meant that the Phillipton unit would then operate as an autonomous body, with its own sub-committee. However, Ntsebenza (2006) reported that the Phillipton land lease was withdrawn when the member whose relative had owned the leased land left the scheme. Hence, by 2006 the unit was no longer operational. Moreover, even though the Hertzog community members were at the forefront of the scheme's establishment, by 2006 Hertzog was also out of operation (Hacop, 2006).

Nonetheless, although a number of researchers have written about the Hacop initiative as a great story of success (e.g. Nel *et al.*, 1997; Binns *et al.*, 1998), the reported emergence of dictatorial tendencies in leadership, community clashes over restitution claims (Hacop, 2004 and 2006), etc., have contributed to its demise. In fact, contrary to the guidelines of the scheme's constitution, which provided for elected representatives in committees to stand only for a year, E.N. Nkayi, had remained the chairperson since 1994. It was reported that several attempts, for example to hold democratic elections, to remove him from office had failed (Hacop, 2004 and 2006). More detail on Hacop's leadership problems is given in forthcoming sections.

In the backdrop of the early good research reports, and with increasing membership, the demand for resources (especially irrigation equipment) also increased. With the help of an extension officer⁶⁴, assigned by the government, the scheme received new equipment donated by 'Micro Projects'⁶⁵ (a US based Non Governmental Organisation - NGO). The NGO also donated seedlings and sent its additional extension officer to oversee operations. Around 2000, however, 'Micro Projects' stopped operating in South Africa, which meant that the visits from the extension officer had to stop. That signalled the start of a period of reduced levels of external support to farmers (Hacop, 2004; Nstebenza, 2006). Notwithstanding the period of noted decrease in support, it was discovered in interviews that in 2004 the scheme

⁶⁴ Mr Phansi was based in East London and acted as the scheme's extension officer. At a meeting held in 2004 with Hacop (Fairbain) the members present stated that the officer also advised and supported the scheme in securing new markets for their production. In 2001, Mr Phansi was redeployed without a replacement (Hacop, 2004).

⁶⁵ The NGO has a mission of supporting rural and agricultural development projects in various regions of the world.

received further equipment a tractor and seedlings from the local district municipality. There was also allusion that the scheme might be included for support in the municipality's 2006 budget (Mbi, 2006). That served as an indication that, even though it was in reduced format, some level of external support was still offered for the scheme's survival.

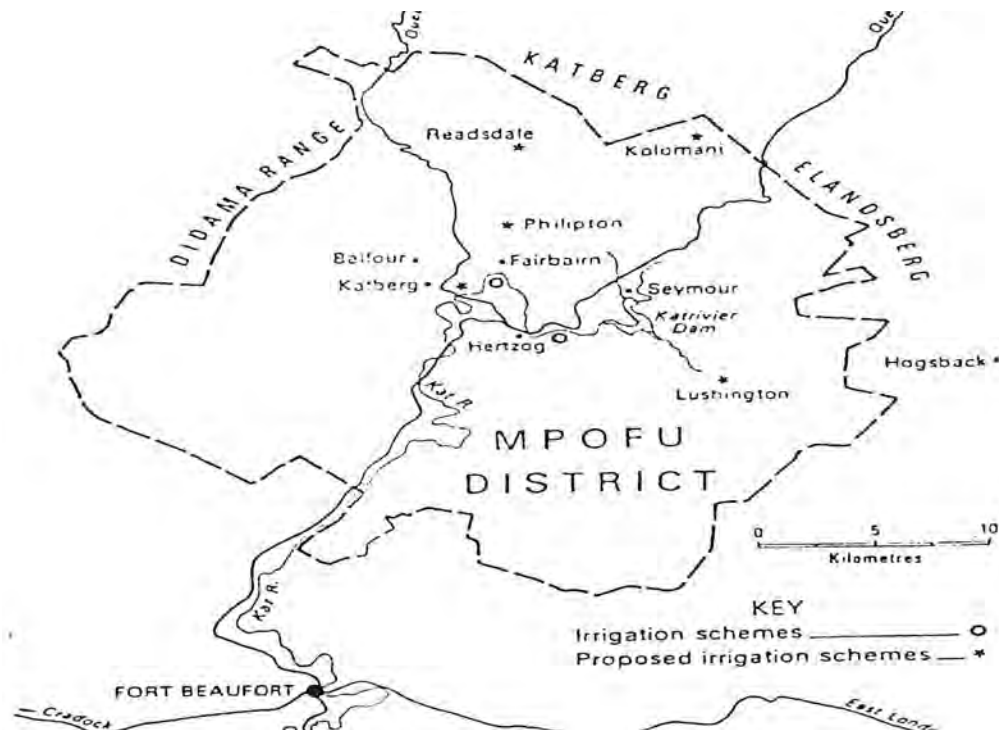
With regard to financial management it was reported that until 1999, Hacop had a single account in which all production proceeds were deposited as stipulated in the constitution (Sec. 6 Appendix 3). "All proceeds will be deposited into the Hacop account , and transferred into plot holders' accounts on three predetermined dates annually, subject to provisions 6.4; 6.5; 6.5" (Constitution, 1994). However, due to poor leadership and alleged financial irregularities, in 1999 separate bank accounts were opened by each of the branches, *without amendment to the constitution* (Hacop, 2006). That was indicative of an emergence of a breakdown in financial accountability that would characterise the scheme's operations from that period onwards.

In the setting up of the structure of Fairbain's management body, which is illustrated in Figure 6.8, it is clear that once again the members disregarded explicitly stipulated constitutional provisions. The constitution stated that only two representatives from each branch would be elected to form Hacop's umbrella committee. In practice, however, five representatives from each unit composed the fifteen member committee that was not even functional (Hacop, 2004).

Two conflicting statements were given by members in 2004 and 2006 regarding the length of the DLA land lease. At a 2004 meeting in Fairbain (Appendix 15), the chairperson of the unit mentioned that the 1994 lease was only going to expire at the end of that year, as it was only valid for ten years. However, in 2006, during a workshop held in Fairbain (Appendix 4), farmers offered a different statement; they agreed that the lease was actually valid for eleven years. It was also stated that the lease's year of commencement was not 1994 as had been reported previously, but was in fact 1995. On the other hand, what was surprising was that not a single one of the Fairbain members present at the workshop had actually seen the copy of the lease agreement. Members stated that all copies of important documents governing the

functioning of Hacop were kept by the chairperson (i.e. Nkayi), with the original documents kept at the regional offices of the DoA in Bhisho. It was also disclosed that failed attempts had been made in 2003 to renew the land lease. A request for renewal was written to the DLA but no response had been received to date. Therefore, it was understood that by 2006 the scheme operated illegally in terms of land resource access. The realisation was confusing in the light of continued recent and potential external support from the local government. If anything this was an illustration of the unfortunate complex nature of non-coordinated support policies from various wings of government with regard to the scheme's sustainability.

In the late 1990s the DLA had commissioned extensive research projects on land redistribution and restitution challenges in the Mpofu Magisterial District, in which all three villages were also located (see Map 6.6). The research outputs included a revised Register of Land Title Deeds of 1998 (DLA, 1998) and specific to Hertzog, was the 2002 Hertzog Agricultural Project Business Plan. That plan was divided into three parts, namely, a) the Situational Assessment and Development Framework, b) the Communal Land Use Plan (residential and grazing), and c) the Irrigation Farming Plan. The latter incorporated a discussion on the use of land previously leased to Hacop in Hertzog.



Map 6.6 The Mpofo Magisterial District

(Source, Nel, 1997:278)

In the Irrigation Farming Plan, the villages of Hertzog and Tamboekiesvlei (see Appendix 13) would share irrigation resources for the development of 73.8 and 111.4 hectares of land respectively. It was clear from the plan that the new approach encouraged and supported by the DLA with regard to the use of the communal land resources was that of individual use and ownership, as opposed to collective or family use (Loets, 2005), which happened to be the unfortunate case with Hacop. A total of 147 residents lodged individual applications for the land to be sub-divided into half hectare plots. Of the total applications, 112 were successful (DLA, 2002:6). Such data would be useful in later discussions of the confusing processes surrounding the land reform programme in the villages as well as the additional uncertainty and negative contributions the processes afforded to the operations of agricultural projects. From the discussion it is clear that while the emerging farmers at Hacop were in the dark with regard to guaranteed future land access, the DLA had proceeded in instituting its own policies and plans in distributing the land resources away from communal to private use, access and ownership (Loets, 2005), without adequately transmitting such information.

It is fair to conclude that the developments with regard to the use of communal land, the lapse as well as the non-renewal of the land lease, compounded by internal leadership and financial challenges all culminated in a situation where in 2006 only the Fairbain unit of Hacop was the only one in operation. These developments may have also contributed to the confusion surrounding the question of whether the scheme's constitution was still binding on each unit. A more important institutional question, however, was whether or not the scheme still existed in its original and legally binding format. Moreover, unlike the reported Hertzog members' willingness to have subdivided land resources for private use (DLA, 2002), farmers in the Fairbain branch insisted that they were not in support of moves to have communal land subdivided and/or sold to individuals. These developments showed, if anything, that the biggest challenges that the scheme was faced with were clearly grounded within an institutional realm. Hence, one of the resolutions taken at Fairbain's January 2006 workshop was that the scheme would seek legal advice on their standing with regard to access to land and equipment usage inherited from Hacop's 1994 arrangements. The legal clarity and solutions on those and similar issues would have to be found before the problems surrounding leadership issues and business operations could be tackled. Nevertheless, the following section discusses the specific business operations of the Fairbain unit, as prescribed formally and as performed informally, (Hacop, 2006) which would need a radical modification if the scheme were to grow and expand from its state in 2006.

6.4.4 The current business operations of Hacop in Fairbain

Hacop had a total of twenty-two registered members in 2006, almost half the number, i.e. fifty-two, that joined in 1994. Of the twenty-two members, fourteen were non-pensioners and thirteen were females. Any member of the community could join the scheme by paying a fee of hundred rands. Every month, each member was required to pay an additional seventy rands towards a bill for electricity used by the water-pump (see Appendix 16 and 17) (Mbi⁶⁶, 2005). The land was subdivided among members according to each farmer's ability to properly manage an allocated plot (see allocation

⁶⁶ Secretary of Hacop in 2005

in Appendix 16). Mpevana⁶⁷ (2005) stated that “normally, each hectare of land is subdivided into four quarters per member, but those who can work harder have close to a full hectare of land”. It should follow that with a decrease in membership over the past ten years, more land plots have potentially become available to each member.

Management and human resource skills

When new members joined the scheme, the committee as a whole, including individuals who continuously received agricultural training, (e.g. Mr Mpevana) were responsible for overseeing operational practices on all plots. The committee offered extra advice to unskilled members on request (Mbi, 2005). Considering the size of the scheme, it has to be noted that in the management structure, as illustrated in Figure 6.8, almost half of the scheme’s total membership had designated positions with responsibilities. Nevertheless, it must be pointed out that the responsible members, with the exception of the secretary, were all male even though the number of females in the whole scheme was higher at more than sixty percent. Hence, it is clear that the distribution of serious responsibilities was biased against females.

On the surface, the management structure looked well organized. The management was divided into three teams and three supporting individuals. Such a structure seemed to present a picture of a professionally run business organization. However, whether all members who were assigned responsibilities performed their respective duties accordingly was not certain. It was established during interviews⁶⁸ that some of the designated persons in the structure were actually no longer members of the scheme. For instance, N.A. Hans had joined another project at the end of 2005, which was reported to be in competition with Hacop.

⁶⁷ A former chairperson of the scheme.

⁶⁸ The secretary indicated that most of the figures and charts used in the scheme were produced through workshops run by external agencies for the scheme. In that regard the committee was trying its best to ensure that all members adhere to policies and rules that were stipulated in the official charts and diagrams (figures) of the scheme. This does not rule out that some of the rules that were actually followed in the field may have been very different from those officially presented.

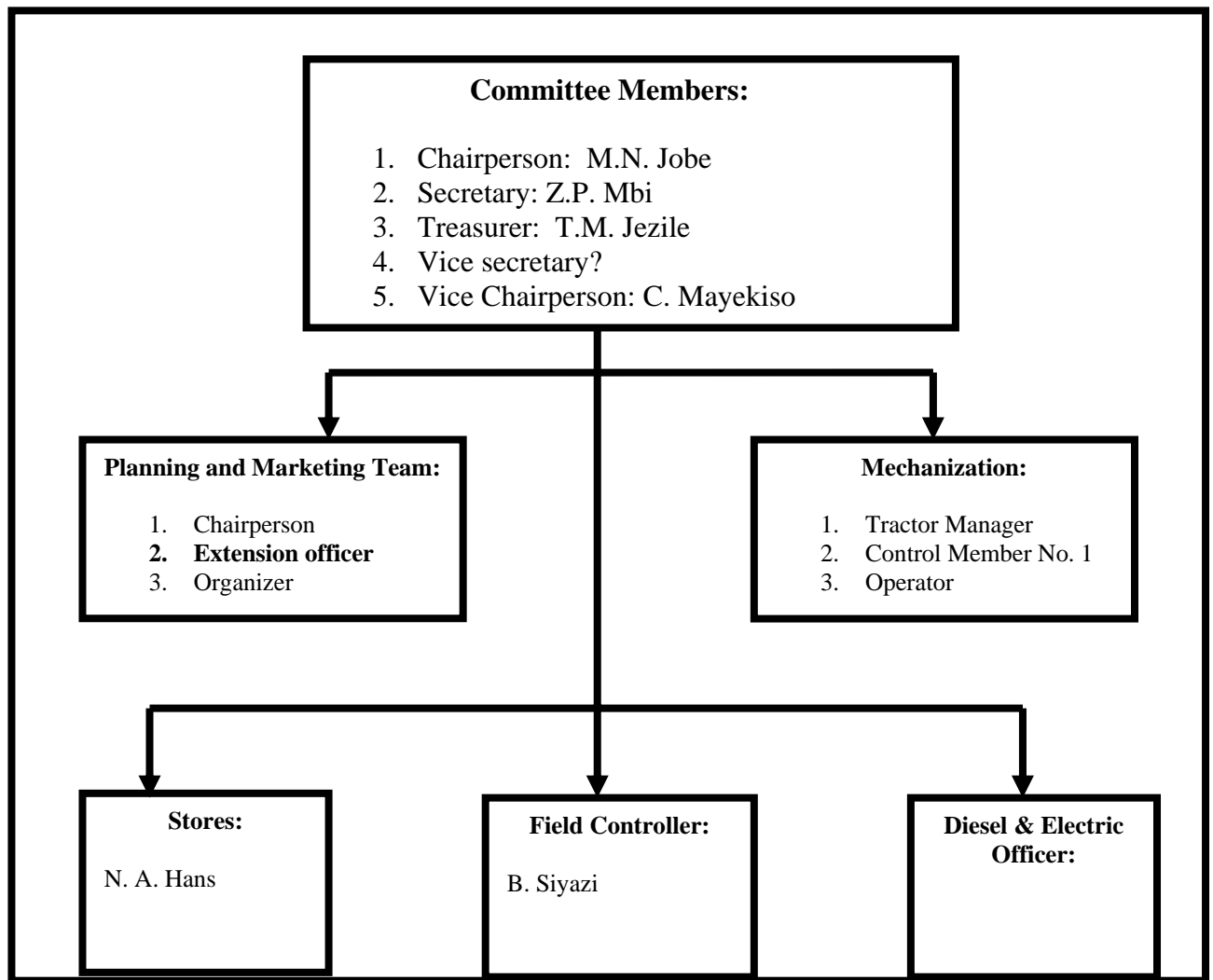


Figure 6.8 Management Structure: 2005/2006 Fairbain Branch (Hacop)
(Source: Hacop, 2005)

All committee members in the top block were, on the other hand, active with the exception of the vice secretary (number four). It could also be seen from the Planning and Marketing Team box that the inclusion of an extension officer was not a representation of what happened in reality, because in the last section it was established that the scheme had not had any visits from an extension officer since 2001. The designated position of a Diesel and Electric Officer was also vacant as indicated in the figure, most probably because of a lack of relevant skills.

In addition, many of the members were pensioners, which meant that they were relatively physically weak and poorly educated⁶⁹. Therefore, the scheme was poorly

⁶⁹ In the 2004 survey (Appendix 19) of the upper KRV villages it was found that younger members of the communities had spent more years at school than the older ones.

positioned in terms of acquiring new and non-traditional agricultural and business skills. In fact, the reported average years of schooling education for members of the scheme was only four years (Mpevana, 2005). It must, however, be mentioned that even though on paper Hacop's human skills, and hence its future business prospects, did not look impressive, the fact that the scheme had survived eleven years by continuously seeking external assistance was a better indicator of how the group could sustain itself.

To ensure transparency and fluent information flows among members, the scheme documents claimed that a 'fish-bone' organisational procedure was followed as illustrated in Figure 6.9. According to the procedure, the committee would meet once every month, while sub-committees or portfolio groups met twice a week, on Mondays and Wednesdays. Each of the portfolio meetings would be headed by a one of the assigned committee members (refer to Figure 6.8). Matters arising from weekly meetings taking place during the course of the month were channelled to the agenda of the committee's regular monthly meetings, where heads of the portfolio groups gave their report back to the committee. It was reported that Mr Mpevana, who had past working experience with the cooperative, had motivated for the adoption of the 'fish-bone' organisational structure from Katco. It was hoped the structure would bear the same efficiency for Hacop that it had for Katco (Mbi, 2006).

In the two weeks (non interrupted) spent with farmers in December of 2005 as well as on two occasions it was, however, noted that only the Monday task group meetings were convened. This was slightly different from the formally illustrated procedures. The observed meetings appeared to be of a general nature, as opposed to being task oriented, and all members (not only the task group) were present at a single venue. Such may have further reiterated the observation made earlier that most of the task teams represented in the management structure were in effect non-existent, and most likely because of a lack of human skills.

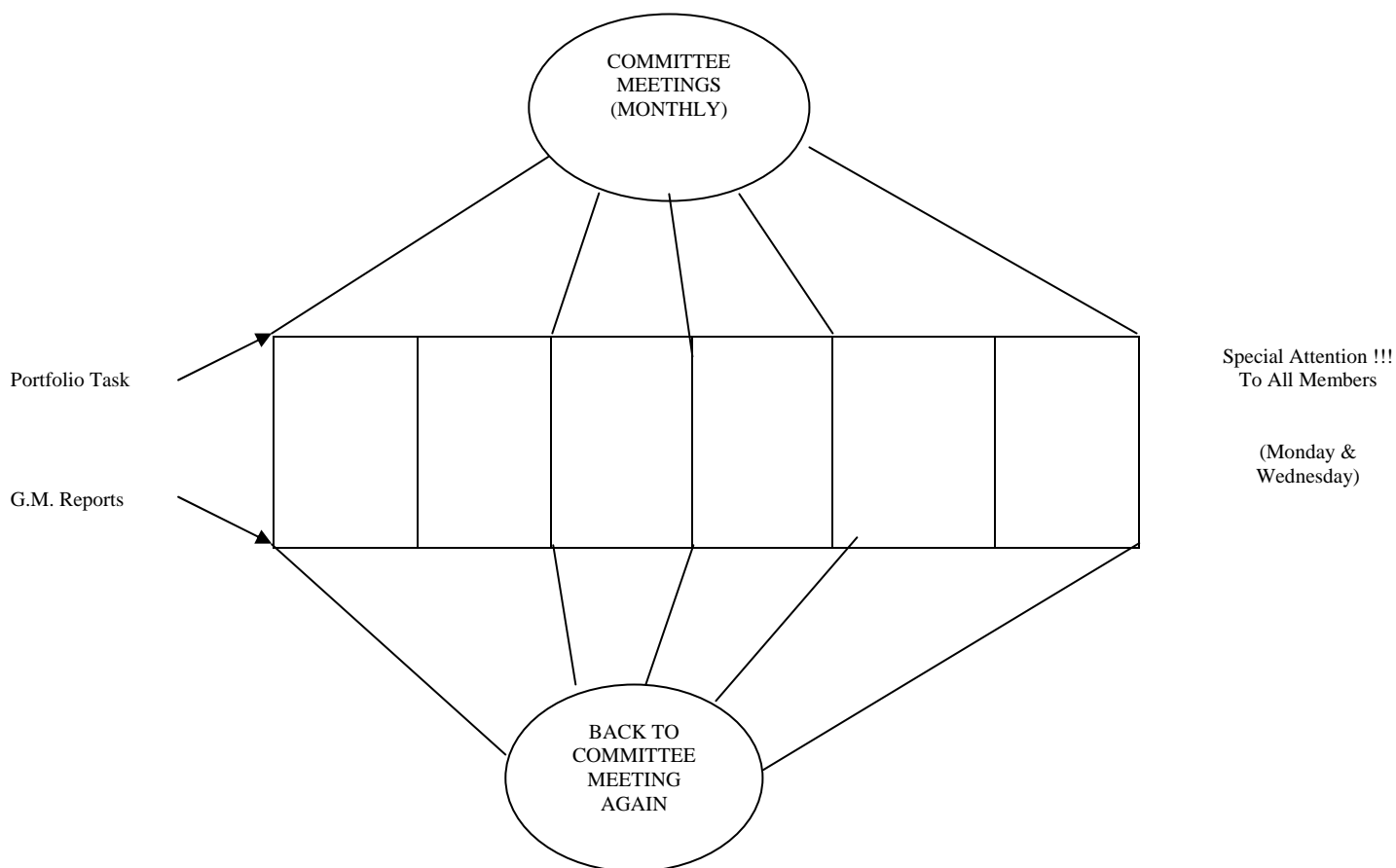


Figure 6.9 A fish-bone structured system of communication
(Source: Hacop, 2005)

The formally presented communication procedures in Figure 6.9, as was the case with the management structure in Figure 6.8, seemed effective and sensible on paper; but, as already pointed out, these were not strictly followed. From field observations, it seemed that the sketches merely provided ideal management models which the scheme, at best, wished to emulate. Such models may have been taught to the scheme in the many workshops that Mbi (2005) claimed were facilitated by supporting external agencies. Their *true application*, however, seemed to be *limited*.

The production operations

The specific crops that were being cultivated by the scheme were cabbages, beetroot, butternut, carrot, lettuce, potatoes and maize. It was also reported that an arrangement

between the Amatole District Municipality, Hacop and Da Gama Textiles Industries had also been reached for the cultivation of cotton to begin in 2006 (Mbi, 2005).

For such a relatively small scheme, with only twenty-two members, it seemed that the number of crops that were being produced was rather large, even though some of the crops were only seasonally produced. This may indicate that, a) the scheme had acquired effective agricultural skills from the extensive experience of eleven years of being in production, b) members had also taken seriously the knowledge that may have been gained from various agricultural workshops that were organized by external agents in the past, and c) the donations of seedlings, especially from the local municipality, were being used effectively (Mbi, 2005).

To manage a good quality output of as many listed crops would certainly require a system that would also have to be vigilantly followed. In that regard, the scheme followed a planting routine where members, divided into three groups, planted at one month intervals, one group after another. Such was done to ensure that a variety of fresh vegetables were always available to consumers throughout all seasons (Mbi, 2005). This planting system is illustrated in Figure 6.10 for the cultivation of one hectare of land for cabbages. According to the illustration, a hectare of land would be divided into four quarters, with seedlings planted in the first quarter for four weeks. Thereafter, the seedlings were transferred into the second quarter to grow for three months. The same procedure would be applied to the remaining quarters (three and four, respectively).

$\frac{1}{4}$ Number 1	$\frac{1}{4}$ Number 2	$\frac{1}{4}$ Number 3	$\frac{1}{4}$ Number 4
<p>Crop: Cabbage: *Time of planting: all the year round *Three months to bloom</p> <p>Procedure: *Divide one hectare into four quarters *Prepare the land $\frac{1}{2}$ hectare (quarter number 1 and 2) *After four weeks transplant from quarter 1 into 2 (In the first three months) *The same procedure is repeated for quarter 3 and 4</p>			

[A division of a hectare of land for growing cabbages]

Figure 6.10 A system for cabbage production
(Source: Hacop, 2005)

However, once again, not all farmers followed to its entirety the outlined set of planting procedures in Figure 6.10. The former chairman⁷⁰ of the scheme, for instance, followed his own rules when deciding what crops to grow and when to plant on his plots.

“In deciding what to plant I look at the gap in the market and attempt to fill it. I do not want to over flood it with one crop that is being produced by every farmer, say cabbages for instance. I also use the climate information from previous years as well as future weather forecasts [to get] a good idea of what crop would do well” (Mpevana, 2005).

At the time of this interview the farmer had planted beetroot, butternut and maize on his plot. This is further illustration of how the official and formally coded rules were often *completely disregarded or partially* followed by the members, and replaced by informal practices.

Water supplies

Even though these emerging farmers reported that they had never experienced any water supply⁷¹ shortages in the history of their scheme (largely thanks to the scheme’s upstream position they occupied along the Kat River system), their irrigation operations followed a formal set of stringent rules to be followed by members in assigned groups. For the rules to work, members were grouped according to their plot positions as is illustrated in Appendix 16. Table 6.11 represents a real life irrigation roster for the months of November, December 2005 and January 2006. The roster consisted of five groups with five to seven members each. Each group was allowed to irrigate from Monday to Friday. In the table the three groups are assigned specified time slots given in units of hours, days and weeks for a given month. The members of the group had to have their plots in close proximity to each other for effectiveness since the irrigation equipment required to be physically moved around the field. For example Messers N.E. Makhayi, Dwani and Mgwali were members of the first group,

⁷⁰ Mr Mpevana

⁷¹ In numerous case studies of irrigation schemes water supply shortages are highlighted as the most prolific source of farmer conflicts (see Bromley, 1982; Letsoalo and van Averbeke, 2004; Mbatha, 2005, etc.).

which irrigated on Mondays. It is also important to note in the roster is that not all the scheme members are listed on the example roaster, but those who worked the land on a full time basis⁷² (Njobe, 2005). Each member was allowed three hours of irrigation water per time slot. The roster also indicated members whose turn it was to move the irrigation equipment from different locations on the field (Mbi, 2005).

Table 6.11 Irrigation roster (three hours per person or nine hours per day)

Date	Members' Name	Week of month/group of farmers
21-11-05	1.N.E.Mankayi	I
28-11-05	2.C.Mayekiso	II
05-12-05	3. N.A.Hans	III
12-12-05	4. M.Lexe	IV
20-12-05	5.W.Mpevana	V
26-12-05		
03-01-06		
10-01-06		
17-01-06		
24-01-06		
31-01-06		
(Whole group)	Whole Group	
22-11-05		
29-11-05	1.I.Dwani	I
06-12-05	2.M..Pezisa	II
13-12-05	3.T.Dasa	III
21-12-05	4.M.Njobe	IV
27-12-05	5.M.Gebenga	V
04-01-06		
11-01-06	6.M.P.Mbuse	
18-01-06		
25-01-06		
01-02-06		
Whole Group		
23-11-05	1.S.J.Mgwali	I
30-11-05		
07-12-05	2.Z.P.Mbi	II
14-12-05	3.B.Siyazi	III
21-12-05		
28-12-05	4.M.Hans	IV
05-01-06	5.G.R.Fanaphi	V
12-01-06		

(Source: Hacop, 2005)

When comparing the roster to the field layout in Appendix 16, it is clear that some names were mismatched and not all the names on the layout were present on the roster and vice versa. As was mentioned in the previous section, some of the people with names listed on the figures and table lists no longer farmed with Hacop. Hence, it seemed the scheme's documents had not been updated at the time of the study. On the other hand, whether the members assigned to the respective groups did perform their share of irrigation tasks in an equitable manner could not be verified.

⁷² Mrs Gebenga (2005) an old pensioner and ex-farmer of Hacop related her troubles with the moving of pipes around the fields as a woman and senior person. She highlighted the problems brought about by age and gender in the type of work women were expected to be involved in at Hacop.

Equipment and machinery

The equipment used by farmers seemed to be adequate for the scheme's production output in 2006. A new tractor had been donated to the scheme by the municipality in 2004. In addition, Mpevana owned and used his own tractor. Not all of the water pipes were old heavy metal; some were light plastic, which made them easy to move around. At least three water-pump engines were available; one run on electricity and the other two on diesel. It was reported that the diesel pumps were always on stand-by and ready for use in times of electricity cuts (Mpevana, 2005 and Mbi, 2005).

However, all interviewed members complained that there was no available vehicle to deliver the scheme's produce to buyers and to promote products in *untapped markets*. The tractor could not be used for deliveries because it was no longer roadworthy⁷³. The *lack of transport* was highlighted as probably the biggest source of *failed marketing* ventures. What was also conspicuously missing to farmers was a packing shed, although the secretary reported that the municipality had promised to build one in the near future (Mbi, 2005). Overall, it appeared that if a vehicle to transport products to potentially new markets was acquired and a shed to store the crops was built, the scheme would have more than the basic necessary resources required to run an emerging but sustainable business.

The management of finances

It was mentioned that the scheme raised some of its income by charging a joining fee of R100, 00 to new members and collected a monthly fee of R70, 00 for the electricity bill (see Appendix 17) from the 2004 to 2005 records. A shared pool of income was generated through the sale of crops and divided according to the share of crops sold from plots of individual members. A predetermined schedule was used to sell products to customers⁷⁴. However, customers were also given a chance to choose the plots from which they wanted to buy, based on the quality of crops. This explicitly

⁷³ It was, however, reported that the same non-roadworthy tractor was also hired out to the community for an extra income to the scheme's coffers.

⁷⁴ Mainly vegetable-store owners who often drove themselves to Hacop plots to buy and pick up stock.

competitive system, it was hoped, would ensure that good quality productions were maintained (Mbi, 2005). All the quantities sold by each member would then be entered in a logbook as illustrated in Table 6.12 for cabbages sold in the month of October 2005.

Table 6.12 Cabbage log for October 2005

Date	Number of loose cabbages	Price in Rands	Total in Rands
10-10-05	15	2,00	30-00
21-10-05	25	1,50	37-00
27-10-05	60	1,50	90-00
27-10-05	50	1,50	75-00
31-10-05	100	1,50	150-00
31-10-05	35	1,50	52-00
03-11-05	100	1,50	150-00
04-11-05	147	1,50	220-50
12-11-05	25	1,50	40-00
18-11-05	60	1,50	90-00
18-11-05	25	1,50	37-50
17-11-05	179	1,00	179-00
16-11-05	50	1,00	50-00
24-11-05	275	1,00	275-00
29-11-05	155	1,00	155-00
29-11-05	100	1,00	100-00
25-11-05	20	1,00	20-00
30-11-05	220	0,50	110-00
Total	1641		1861,50
Deductions in Rands For previous month's expense			
Water			-240
Operations (Refer to Table 6.13)			-425
Total			665
Grand Total			1,196-50

(Source: Hacop, 2005)

Table 6.12 illustrates how a member sold 1641 cabbages in one month for a profit of R1861, 50 and had to pay the scheme for water (R240, 00) and operations (R425, 00) provided, resulting in a net profit of R1196, 50. The operational expenses due to the member are illustrated in Table 6.13. The table illustrates the type of services provided by the scheme's tractor to the member as well as the specific charges. For example, 'bush-cutting' for half a hectare cost R100, 00 .

Table 6.13 Hacop Income from land activities by each member in 2005

Month	Operations (Tractor services)	Area size in Hectares	Amount in Rands
April	Bush cutting	0.5	100,00
	Ploughing	0.5	150,00
	Disc harrow	0.5	100,00
	Ridge	0.25	75,00
Total operations		1.75	R425-00
Amount of seedling	Cabbages	5000 for 0.5 ha	Free/donated by municipality
May	Planting	0.5	Performed by member
Totals (Refer to previous Table 6.12)			
Harvesting			1,861-50
Deductions (operations and water)			-(425 + 200 = 665)
			1,196-50
Monies owed scheme			-76-00
			1,126-50
Late harvest income			140-00
Grand Total profit to member			1,266-50

(Source: Hacop, 2005)

From the example as illustrated in Table 6.13 each member of Hacop (Fairbain) was paid from seasonal farming activities. In Stonehenge, however, it was reported that the municipality paid the scheme's committee a lump sum for preparing the land for cotton cultivation. The money was then divided among members based on their individual time contributions, which was a bit different to how Hacop operated. In any case, the same municipality had instituted a similar incentive scheme for Fairbain farmers, bearing in mind the fact that a cotton producing arrangement had also been proposed for Hacop (Mbi, 2005).

It was clear that the scheme's total income was perceived to be too low by the Fairbain community, because the membership levels had dropped over the years. This formed one of the explanations, which included old age and poor health that were offered for the drop in membership, especially of younger former members. Hence, money income was one of the pertinent reasons why members needed the scheme to

grow as a business. To achieve the goal Njobe (2005) stated that members were discussing the possibility of establishing a Trust Fund as an official body that would look after the business interests of the scheme.

“This fund would help in growing the scheme in the future and help ... with the everyday maintenance. The fund would also help deal with problems such as arrears in payment of the electricity bill for the water-pump” (Njobe, 2005).

He also revealed that the scheme had once tried to raise collectively owned funds by retaining an amount of R200-00 from each member’s share of profit. However, because farmers felt that they did not receive the same benefit as from the actual sales of crops, the method was perceived to be inequitable. Consequently, owing to the complaints the committee could not collect the individual contributions properly, which meant that the method had to be revised or abandoned completely (Njobe, 2005). However, it was reported that in the forthcoming meetings the committee would still propose that at least twenty percent of members’ contributions be deducted for the creation a central Trust Fund. Nevertheless, interviews with some of the farmers indicated that there were strong objections⁷⁵ to the proposal. The opposition also came from the most productive members of the scheme, for example Mpevana. Despite the opposition, the committee proceeded to invite the research team to facilitate a workshop aimed at assisting the scheme in drafting its Business Plan as well as to shed some light on the legal requirements for establishing the Trust Fund. During the workshop held in January 2006, it was remarkable to note that no objections were raised against the establishment of such a fund and/or the revised system to support it financially. Such was an illustration of unspoken internal power struggles that characterised the scheme. Hence, in the following section internal and external political challenges as well as explicit and underlying problems regarding Hacoop’s leadership struggles are discussed. Some of these challenges have already been alluded to in the preceding sections.

⁷⁵ In individual interviews Mpevana (2005) expressed very strong and negative opinions about the current leadership and their ideas, stating that when he was chairman things were run better. Not surprisingly the current Chairman (Njobe, 2005) stated that the former chairman had not been effective, hence changes had to be instituted. However, there was resistance to the needed change, but he did not mention from where the resistance came.

6.4.5 Political and leadership challenges

External challenges:

Hacop was established within an environment of political transition and racial conflict. The vacuum left by the collapse of the former Ciskei government and the departure of white farmers, who were important economic drivers in the villages, forced the community to take charge of their own affairs (Nel, 1997).

The political transition in the country as a whole meant that the issue of land tenure could not be finalized. In fact, eleven years after the transition, land tenure remained highly contested. Therefore, Hacop existed in an environment of great uncertainty, where grounds conducive for sound business operations were improbable to achieve. The developments in land redistribution and restitution programmes initiated by the DLA in the late 1990s directly influenced the evolution of the scheme. Because the residents of Hertzog village opted for different land rights management solutions⁷⁶ compared to the Fairbain farmers meant that Hacop could not exist as a single unit in the two villages while using a different set of rules. It was therefore clear that as much as Hacop members wanted to reconfigure and protect their future business prospects, the external political developments affected most of their decisions as a unit in a negative manner.

Internal challenges:

As reported earlier, the biggest challenge that confronted Hacop in its eleven-year history was poor leadership. In section 6.3, it was reported that two key members of the Hertzog community took the initiative to establish Hacop. Since 1994, Nkayi had remained the officially elected chairperson of the scheme. During which time he deliberately avoided actions that would have him removed from the position. Current and former members quoted him as saying that because he co-founded the scheme, he owned it (Mpevana, 2005 and Ntsebenza, 2006). The statement was supported by his

⁷⁶ The Hertzog Business Plan of 2002, which was discussed in section four, indicates that the Hertzog residents preferred private land ownership as a solution to their land claims, whereas the residents of Fairbain (including Hacop members) indicated that they would resist a similar solution (Ntsebenza, 2006; Hacop, 2006).

reported behaviour. Besides his avoidance actions to be removed from office, it was clear that at the later stages of his effective time as chairperson the scheme experienced negative growth. In addition, because of these (leadership associated) challenges and reported financial mismanagement, the village branches were forced to open separate bank accounts (Hacop, 2006). These events give weight to an argument that when leadership is vested in a single person for too long, it is most likely that it would lead to undemocratic and economically inefficient outcomes.

It was established from interviews that Blaik's⁷⁷ departure in 2001 spelled more disaster for Hacop's marketing efforts. The extension officer was reported to have had "many connections and managed to get customers for the scheme from as far away as uMthatha and Bloemfontein" (Mbi, 2005). Once again, it appeared that some of the important business marketing skills were not effectively transferred to most members. The skills remained centred around individuals. Hence when the individuals departed or behaved in a manner that negatively affected the group, the scheme suffered on the whole.

During the workshop (January 2006), it was established that the challenges of setting up a Business Trust Fund partly stemmed from a lack of information concerning the Fairbain unit's legal position with regard to access rights to land resources and irrigation equipment. It was also noted that because Nkayi had kept all business related documents, the farmers did not know, for instance, the contents of the DLA-Hacop land lease (Hacop, 2006). As the former chairperson of the Fairbain branch of Hacop, Ntsebenza (2006) summed up the problem by stating that not only did the members not have enough legal information, but also they were actually unwilling to approach and upset the man who founded the project. Hence it seemed that even acquiring the relevant information to make the most crucial business decisions would be hard.

Within the Fairbain branch itself, it seemed that tensions were also high between the former and current chairmen (i.e. Mpevana and Njobe respectively). Njobe (2005) was direct in mentioning that the former chairperson had instigated a rebellion against him and his business ideas as well as style of leadership. For example, he pointed out

⁷⁷ Mr Blaik was the scheme's long serving extension officer.

that while members were supposed to plant crops according to a plan agreed upon by the committee, Mpevana had followed his own plan in defiance. The idea of supporting the proposed Business Trust Fund through a proportional levy on profits was also a point of heated debate between the former and current chairmen. Mpevana (2005) felt that the ideas put in place during his tenure had been undermined, even though the new ideas were impossible to implement⁷⁸. It was, however logical that Mpevana, who was the most productive farmer in the scheme, naturally would be opposed to a levy system that would force him to contribute more money than would other less productive farmers. In any case, the debate on the issue resulted in some members of the scheme describing the meeting at which the issues were raised as heated and very sensitive, while others plainly refused to comment on the proceedings (Mbi, 2005). Such were clear illustrations of existing internal tensions and leadership challenges, which negatively affected the scheme in its current and future form. The following section isolates the important themes from the case study for an institutional discussion and analysis in the forthcoming chapter.

6.4.6 Isolated themes for analysis within an institutional framework

The unstable and uncertain political climate in which Hacop was established had its pros and cons. The departure of Ulimocor contracted consultants from the villages was spotted by some community members as an opportunity to establish the scheme, and was a typical bottom-up developmental project. However, without enough resources, human and capital, the sustainability of the scheme was always going to be suspect. Moreover, because there was a new government in power at a national level, only a temporary land lease agreement could be signed between the DLA and Hacop. Moreover, the permanent use of irrigation equipment abandoned by the farming consultants could not be guaranteed. Such factors would only sustain the pervasive and negative uncertainties with regard to access rights to land and other resources with which the scheme was faced.

⁷⁸ Njobe (2005) also stated on the record that, “Mpevana did not want to face up to own mistakes as a leader. He is running his own ‘program’ within the scheme that differed from the programme of the scheme”.

The fact that Hacop's operations were conducted in three villages with members spread out over a relatively large geographical area may have also been a recipe for failure. As it turned out in the late 1990s, the DLA (2002) report showed that members of the Hertzog community were happy with the division of their land plots (which were previously cultivated collectively) for individual use or ownership. However, there was resistance to this system of land use in the Fairbain village, which would then entail that Hacop would find it difficult to operate as a single entity across the two villages, which used different rules. On the other hand, the fact that most land and equipment resources were located in the Fairbain village was probably the reason why when difficulties such as financial challenges emerged the operations in other villages, where fewer resources were located in comparison, stopped completely.

The departure of Ulimocor contracted consultancies and extension officers from the area left a skills-vacuum, for example marketing business skills, which would only be filled through a continuous external support system that may have created what seemed like unproductive paternalistic relationships between the locals and outsiders. However, the external support was often uncoordinated between these agencies to an extent that some policy objectives from various wings of government seemed to be in conflict. Notable of those were the local municipality's infrastructural support for the scheme whose legal standing on the use of land resources was considered no longer valid by the DLA (Loets, 2005).

The leadership challenges from the time when Hacop was established could be traced back to a state in which power was centralised on only two individuals, who were the founding members of the scheme. The situation led to a lack of flows in information and access to important legal documents that governed the scheme's operations for the rest of the members. The dictatorial leadership style of the first chairperson not only promoted continuous violations of constitutional provisions for regular elections to be held, but it also inculcated a culture of transgressing other formally written rules and it promoted a state of sustained tensions between farmers and those in leadership positions at branch levels. It was clear from data that there was a lack of respect for persons in leadership and there was a lack of full observation of formal operational procedures by the individual members as well as by the scheme as a whole.

Nevertheless, not all of Hacoop's operational activities were unsound. The planting roster and division of plots for the rotation of crops, which was presented in Figure 6.10, seemed to be well managed and effective. The management of irrigation equipment (illustrated by the roster in Table 6.11) also seemed efficient.

On the other hand, however, whether the scheme would have continued to operate without any of the external support it received continuously is questionable. Hence, even though such support may have fostered attitudes of dependency on the part of farmers, it could still be argued that the external assistance was good for the scheme overall, if its lack had meant that the scheme would not exist. In fact, the potential partnership between Hacoop, the local government and Da Gama textile industries to produce cotton may have been one of the possible ways through which the scheme could expand its business. Moreover, despite the reported internal conflicts regarding the establishment of a business Trust Fund, if the venture were to be successfully established it would most likely contribute to efforts through which the scheme could further grow in the future.

6.4.7 Summary and way forward

The chapter presented and discussed historical, geographical and demographic background information of the Kat River Valley (KRV) as well as cases studies on irrigation farming practices and business activities of three distinct community systems located along the Kat River. The first case study presented the case of black citrus farmers who were settled in the KRV by the former Ciskei government. The business challenges facing the farmers, for example the insecurity of land tenure, were described and proposals from various private and public origins for resolving the difficulties of farmers were discussed in the backdrop of supportive and irrelevant public policies formulated at a national and local levels. In the second case study, the Physical Externality Model was presented as a framework for discussing tensions and conflicts arising from water resource abstraction practices among farmers located at various positions along the river. The case study illustrated an argument for an analysis of institutions of most of the reported conflicts and development challenges that faced the various groups from the Upper to the Lower reaches of the KRV. The third and last case study documented a history and present business status of emerging

farmers of the Hertzog Cooperative (Hacop) located in the Upper KRV. The case focussed on the internal politics, leadership challenges and vast human skills shortages, which characterised the scheme's struggles in local and external attempts to achieve business growth and agricultural development of the area.

From each case study important institutional and economic themes, which recurred most frequently in explanations of the developmental challenges facing each group of farmers were highlighted for a later analysis using developmental and institutional frameworks presented in chapters two, three and four. Hence, these themes will form the foundation of discussions and analyses in the forthcoming chapters. The next chapter will revisit the most salient arguments made in literature reviews and presentation of a theoretical framework, in chapters two and three, for a deliberate discussion and analysis of isolated themes from each case. Theoretical arguments for a broader and deeper application of institutional frameworks of analysis within the kind of economic research presented in the thesis will be made. Research results, lessons and limitations identified from other reviewed irrigated agricultural case studies with a formal approach inclination will be presented as evidence and grounds for arguing a case advocating the primary inclusion of the New Classical Institutional approaches to economic research (e.g. North, 1992, Hodgson, 1998 and 2006, McCloskey, 1985 and Evensky, 2004) which investigates socio-economic systems similar to the KRV. Finally, lessons and recommendations for public policies aimed at rural economic development within irrigated agriculture will be presented from the opposing theories in development economics, which were presented in chapter two.

CHAPTER SEVEN – ANALYSIS AND DISCUSSION

7.1 INTRODUCTION

As argued in chapter three, formal and informal institutions have varying contributions towards the process of economic development. These contributions depend on their associated economic transaction costs and dominance over time. The longevity and resilience of institutions to be replaced by new ones enables them to act effectively as tools for resource allocations in societies (Hodgson, 1998). However, there is no inherent relationship between the dominance of institutions and the nature of their contributions to the process of development. As argued by North (1992), often in developing countries, the most socially costly institutions can be the most dominant and resilient ones. Small corrupt cliques that hold powerful political positions in societies may keep such institutions operational. The presence of widespread corruption in developing countries is such point in case. Therefore, a discussion and analysis of institutions and their contributions to development initiatives are not simple and straightforward endeavours. In cases where some institutions, especially the informal ones, may be hard to detect by researchers who have been not been properly assimilated into environments in which their research is conducted the investigations and analyses may be further compromised.

Hence the discussion and analysis of institutions from the Kat River Valley (KRV) case studies in the present chapter are carefully confined to the theoretical parameters of Williamson's (2000) hierarchies and Saleth's (2004) evolutionary framework, which were presented in chapter three. The two frameworks are not exhaustive of all possible perspectives of analysis, however they allow for a clear and logical discussion and analysis of the KRV's institutions for the main purpose of discovering solutions to challenges of economic development in the valley.

Section two presents a discussion and analysis of KRV institutions using Williamson's (2000) hierarchies. In section three, Saleth's (2004) framework is applied to the conclusions reached in section two. The institutional implications from

the discussions and analyses are summarised in section four. The proposed framework for an integrated approach for economic research is presented in section five. A comparative review of recent quantitative and agricultural papers in a reviewed journal publication is presented in section six. Section seven presents the final implications for the theoretical debates and economic research methods, which were reviewed in chapter two and three.

7.2 AN INSTITUTIONAL ANALYSIS OF THE KRV CASE STUDIES

For greater clarity it must be mentioned that the section analyses and discusses, firstly, the isolated themes from each of the three KRV case studies by employing, a) the institutional hierarchical frame proposed by Williamson (2000), and b) the topographical framework proposed by Saleth (2004), which explores the evolutionary path of institutions. Secondly, Ramstad's (1986) framework for identifying the linkages and similarities between themes, which were isolated within and across each case study is employed for a holistic understating of the KRV system. These two frameworks were presented and discussed in detail in chapter three. In essence, in the initial phase of analysis in this chapter, the evolutionary framework forms a more foundational base for an understanding of the path dependence of institutional themes, and at a more peripheral level and for simplification, the themes are analysed within their hierarchical groups as suggested by Williamson (2000). After separate analyses and discussions of all three case studies using the evolutionary and hierarchical frameworks, the thematic linkages across case studies would be traced using Ramstad's (1986) framework.

Williamson's (2000) hierarchy suggested that, a) informal institutions, which are not readily observable such as norms and customs, form the foundations of social and economic behaviour, especially in traditional societies, b) formal and written rules and practices, in the form of constitutions and laws, form a second set of institutions, which even though readily identifiable is, however, not always observed by actors to the same degree in various societies, and c) the explicit rules which govern resource allocations, such as rules of trade are placed at the top of the hierarchy as illustrated by Figure 7.1.

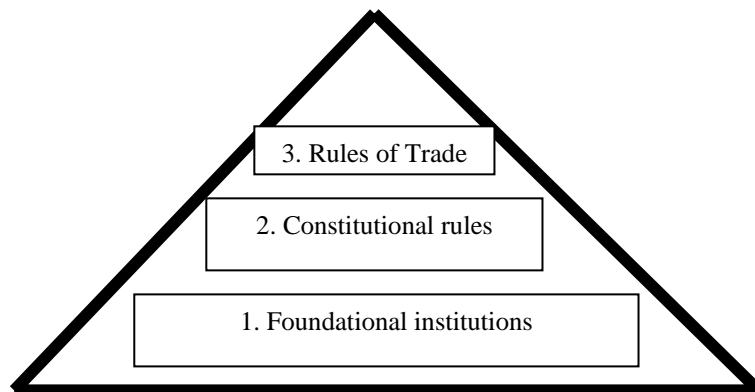


Figure 7.1: Williamson's (2000) Institutional hierarchy

Secondly, the evolutionary framework (Saleth, 2004) suggested that institutional themes be explored, a) at their emergence phases using theoretical postulations similar to those proposed by Quiggin (1988), b) in their natural selection processes through, for example, theories of transaction costs (e.g. North, 1992), and, c) for their dominance, which is often reflected during bargaining processes similar to those discussed by Ostrom (1990). The ultimate purpose of such an analysis is to identify and discuss the likely developmental paths of social systems, which are governed by the most prolific institutions as observed in case studies. In the forthcoming subsections, these analytical frameworks are applied to the KRV case studies of, a) the black citrus farmers, b) the water allocation conflicts among commercial irrigators, and c) the internal business functioning of the emerging agricultural scheme, i.e. Hacop, in the Upper KRV. The discussion of these institutional themes in all the cases is centred around their contribution to economic development of the investigated social systems.

7.2.1 The case of black citrus farmers

In Table 7.1 isolated institutional themes for discussion in this subsection are presented using the classification framework illustrated in Figure 7.1.

Table 7.1 Institutional themes from the case of black citrus farmer

Foundational institutions	Constitutional or contract rules	Trading rules
1. Political corruption, 2. Absentee landlords, 3. Commitments to outside of farming interests, 4. Inter-group conflicts	1. The insecurity of tenure, 2. The debt records of black farmers 3. Government policies for developing emerging farmers 4. Proposals for new business ventures, 5. The historical legacy of former Ciskei's legislation	1. Export demands for citrus products* 2. The local marketing strategies 3. Diverse voices in future business planning at Katco* 4 Singular and cohesive business planning at Riverside S.A.

In Table 7.1 only the institutions thought to have been the most critical and ones fitted most neatly into Williamson's (2000) frame are presented. The institutions are discussed systematically and per given category in the following subsections.

Informal institutions

Using Williamson's (2000) hierarchy of institutions, it was obvious that many unwritten and informal rules governed some of the past and present practices of members of this group, with a mixture of positive and negative outcomes regarding economic development. However, as expected of such institutions they were not always readily observable, in fact in some cases their likely existence was only inferred from observed but consistent behavioural trends within the group.

At least four of such influential institutional themes, some with dire impacts on the potential development prospect of the black farmers, could be isolated from the case study. These were:

- a) Political corruption, which was a pervasive mode of conducting businesses in the former Ciskei, for example political patronage,
- b) Absent landlord-ism presently from occupied farms,
- c) Economic commitments to outside of farming interests, and

d) Inter-group conflicts between farms and ex farm labourers.

From the list it can be seen that all the institutions were interrelated and had strong historical origins. Some of them were inherited from the former Ciskei rule, for example, the corrupt business practices reliant on political patronage. Some emerged from the 1994 political transition in South Africa, for example, the inter-group conflicts between former labourers and on farmers. Nevertheless their negative effects to the economic development of the group were perceptively immense, which meant that their net contributions to social transaction costs, which are discussed by North (1990 and 1992) was also huge. A direct discussion of social transactions costs is presented later in the section.

The level of absenteeism from farms was arguably related to external employment commitments outside the farming businesses. Once again, these practices were factors that could be traced to the way in which farm units were handed out by the former Ciskei government, based on political connections. As a result the new occupants were not only ill-equipped in terms of farming expertise but in economic terms, but their incentives to ensure that the farms were successfully run as businesses were compromised. Hence, the observations of neglected and abandoned farms bore testimony to the lack of the right economic incentives. In that sense, not only were the farms sustained at an underdeveloped level, but also many were actually left to ruin. Such an outcome, it could be argued, was once again related to the political and corrupt manner in which the farmers obtained access to the farms.

The reported tensions and conflicts between the landlords and former labourers may have emerged when the former Ciskei government handed out the farms to new owners originating from locations outside the KRV. However, the tensions were deepened post 1994 with an enactment of land restitution and redistribution reform processes through which the former labourers could lay historical ownership claims⁷⁹ or right of occupation⁸⁰ to the land. Hence, even though new landlords were recognised to be legally designated occupants of the farms by the new government,

⁷⁹ Under the Restitution of Land Rights Act (22 of 1994), which aims to compensate people who were forcibly removed from land before 1913.

⁸⁰ Under the Extension of Security of Tenure Act (62 1997), which is aimed at protecting labourers, with a long service record, from farm evictions

the labourers could be forcibly removed without equal compensation. Hundreds of such households have been reported to reside on the farm units under discussion (DLA, 2002), with reported cases of untameable crop thefts as a result. The situation of dual occupation must have been challenging for both groups, where a) the former labourers must have felt vulnerable at impending threats of removal from the land, and b) farmers reported that they could not fully operate as private businesses with insecure tenure complicated by legal prohibitions and technical difficulties to exclude the former labourers from illegally accessing citrus products. The impacts of these two factors could only be detrimental to normal running business operations.

The biggest challenges for actions or policies aimed at remedying these institutional factors is that they are not readily identifiable, even though their associated and negative impacts on economic development prospects are enormous. It would primarily take an ethnographic or institutional approach to research to detect and identify such informal and unwritten institutions or practices similar to the ones observed in the case of black citrus farmers. Hence, it would be expected to be even more difficult to formulate technical solutions to remedy sources to problems that are themselves difficult to isolate in the first instance. Such is largely the case because, as Saleth (2004:8-9) argues, the economic costs associated with these institutions would be hard to measure using both qualitative and quantitative methods. However, indicative and comparative estimates of such costs could be made when valuating the likely trajectories of developmental paths of social systems under investigations. Such a valuation of costs to the economic development of the KRV is performed in forthcoming sections two and three.

The formal and written constitutional practices

A number of written and/or formally recorded contracts governed the political and business operations of black citrus farmers. However, in some cases clear distinctions, within the in/formal definitional continuum, could not be conclusively made with respect to the identified institutions. For example, the pervasive culture of accumulating debt had its legitimacy contested by the opposing sides, because of Ulimocor's missing records. In other cases, the formal rules emanated from outside the black farming group, for instance the proposed plans for business ventures came

from large commercial farmers. Furthermore in some cases, written contracts, for example the public policies, which were imposed by external public agencies to the KRV system. However, most of these rules could be identifiable as forming the second tier of Williamson's (2000) hierarchy of institutions. This also entailed that, even when they could be distinguished, in some instances they were not strictly observed by the groups they affected. Some of the formal institutions that were identified from the case study were the following:

- a) The insecurity of tenure, ironically stemmed from a lack of title deed documents,
- b) The records (in most cases a lack thereof) of debt owed by black citrus farmers to local organisations and to government,
- c) Proposed plans for new business ventures, for example, from Riverside S.A.,
- d) The historical legacy of the former Ciskei's statutes, which were propagated by parastatal organisations like Ulimocor, and
- e) A map of mostly uncoordinated policies from various provincial government departments, whose general aims are to economically develop emerging farmers.

The way in which the lack of tenure was pervasive in the promotion of underdevelopment in the whole KRV was not only acknowledged by the affected farmers but by government officials (Loets, 2005) and researchers like Motteux (2002). Well-defined property rights are foundational tools for establishing efficient market economies, at least within the classical economic thought, e.g. the Coase (1960) theorem. Hence, their lack is often a clear indication of market failure. It can be argued that not only did the lack of tenure make it impossible for farmers to pursue business growth, but it also reinforced a vicious circle of a culture of despondency within the group, which countered the emergence of economic incentive schemes that could have been introduced to promote self-reliance. Hence, the insecurity of tenure as an institution within which all black citrus farmers operated would have huge social transaction costs associated with it.

There were strong commitments from neighbouring farmers, for example, the Riverside S.A. Enterprise to develop new contract agreements for business partnerships with emerging black farmers with identifiable benefits for parties

involved. Even though the contracts were being negotiated during the time of research, they nonetheless had an effect on the business behaviours of farmers. The proposals were notably locally initiated and driven, and due to their perceived positive future benefits had received support from external agencies such as government (the DLA) and investors (e.g. the IDC). The fruition of their benefits, if successful as planned, would no doubt contribute positively to the development of the whole KRV.

On the other hand, however, the development of business partnership proposals between local farmers and the private sector also highlighted the inadequacies or even inappropriateness of many of the public policies formulated within various government departments to develop emerging actors like those from the KRV. For instance, even though the DLA was the caretaker of the negotiation processes, it seemed that other departments were inappropriately left out, notably the DWAF. Firstly, it seemed that many of the policies, which were outlined in the case study, were on the whole mute insofar as they could be directly related to the local challenges of the KRV communities in practical terms. Secondly, the non-participation of other government departments in locally initiated solutions may have illustrated the extent to which there was a lack of a well coordinated policy approach or activity at a provincial government level. The direct, short and long run effects of these factors on the KRV's development process without a doubt would be negative.

Although the Ciskei government no longer existed at the time of research, it is true that both black and white farmers still felt the institutional effects of its formal laws. For example, the legal establishment and operations of parastatals like Ulimocor, had remained residual, especially in the minds and practices of black citrus farmers. At the most fundamental level, the fact that these farmers found themselves being residents of the KRV was by virtue of the lasting effects of the former Ciskei government alongside its positive and negative practices for the future development of the valley. Obviously the arguments thus far have mostly highlighted the negative net contributions of the former Ciskei government to the KRV and other areas, especially with regard to its corrupt practices. Nonetheless, balanced research should also highlight that not of all of the former Ciskei government's institutions were detrimental to its citizens, even though conclusions could be drawn that the net effects were most likely negative, from the economic state in which the former Ciskei areas

found themselves. In any case, as argued by North (1992), all institutions have associated social costs; what sometimes makes other institutions better or more preferred economically by various societies are the magnitudes of these costs. Minimum transaction costs are normally preferred, unless there are various other mitigating political factors, through which institutions with high costs are maintained. The argument will become clearer in the forthcoming discussion of the application of Saleth's (2004) framework in analysing the evolution of KRV relevant institutions from the 20th century in section 7.3.

The rules of trade

It seemed that not as many institutions that were relevant to *trade* were found in the case study in comparison to other two categories when using Williamson's (2000) hierarchies. It is proposed that such was probably the case because many of these farmers had struggling businesses with limited marketing opportunities for their output, when compared to commercial white farmers. Nonetheless, the following institutions were isolated for discussion:

- a) The growing export markets, which affected the citrus industry in general,
- b) The strategies for serving local markets, which were readily accessible with immediate returns,
- c) The diverse or competing voices at Katco with regard to the directions the cooperative should take with regard to its black members, and
- d) The more cohesive voice found at Riverside S.A., which had the potential to affect the future business prospects of not only the black citrus farmers in the KRV, but in other catchments as well.

The growth of export demands for citrus products was, without a doubt, the most positive development for black farmers, not only in the KRV. However, it seemed from the case study that the markets were not fully exploited by the group, most likely because of a lack of good quality outputs and financial resource constraints. Hence, the primary motivation for Riverside S.A. was to draw new plans in attempts to involve black farmers. Therefore, the transaction costs associated with these institutional factors, it seemed, were probably the lowest and also the most

encouraging to the development of black farmers. Even more important, the plans had the potential to ensure that black farmers would escape their debt trap.

However, before external markets could be explored within the new proposed plans, local markets were available and were being exploited by the farmers. Most of the business marketing that took place during the time of research was directed at local markets, which were attractive especially for their associated immediate returns. Hence, the local markets, though lacking in high profits, formed part of positive contributions towards the sustainability of black citrus farming activities as observed.

While Riverside S.A. had very clear and cohesive plans of engaging black farmers for business opportunities, it seemed that Katco lacked a similar initiative. It appeared such was the case because of cooperative's organisational limitations. Riverside S.A. was small in comparison to Katco, and hence it was easier for the management to make decisions on what plans to execute. On the other hand, Katco was bigger with many internal competing voices, which were a potential contribution towards in decisiveness with regard to how they would engage its black members. The result was that of untapped and lost opportunities. Hence, this institution had some associated transaction costs, in terms of North's (1990 and 1992) postulations about institutions.

7.2.2 The case of water allocation tensions among irrigators

The case of water allocations was approached from a more formal perspective, where a hypothesis was postulated *a priori* in the form of the simple Physical Externality Model, which was used as framework for collecting and discussing data. The model itself was developed on social data, geographical and physical constraints as well as institutional thinking. In Table 7.2 the most important institutional factors, which affected the behaviours of actors and observed events in the system are once again presented using the Williamson (2000) framework.

Table 7.2 Institutional themes from the case of water allocations

Foundational institutions	Constitutional or contract rules	Trading rules
1. Stringent water releases in post-drought periods 2. Strategic behaviours 3. Risk aversion 4. Abstraction of water from alternative sources	1. Riparian water rights 2. Scheduling land rights 3. Relocation of white farmers 4. Non payment by Upper KRV 5. Geographical boundaries 6. Technical exclusion of the Lower KRV 7. High endowment of physical resources in the Upper KRV	1. Payments for releases 2. Inefficient water uses 3. Allocation tensions 4. Lack of marketing plans or skills in the Upper KRV 5. Proposed water licenses

It can be seen from the table that most of the institutional practices, which affected the irrigators, were mostly of a formal nature. Such was the case because of the *non-traditional economic status* of most of the actors in the system. In addition, because the case study was mainly concerned with water abstractions (where water markets were not yet developed⁸¹) relatively fewer institutions pertaining to water trading rules could be identified or solicited. Nevertheless, the study showed that even the formal rules that were established for water allocations along the river were technically inefficient as postulated by the Physical Externality Model. The extent to which identified institutions may have been costly to the economic development of the KRV as a whole is proposed in the following sections and for each of the categories listed in Table 7.2.

Informal institutions

It is clear from the case that the two droughts of 1983 and 1991 formed a bad experience that led to very risk averse and inefficient practices in terms of water levels kept for cautionary measures in the dam. Officially, the levels were set at a minimum of sixty percent, however, in practice and as reflected in the data from 2001 to 2005 the levels were maintained at ninety percent, meaning that the vast amount of the water resources were not being used optimally. In terms of the Edgeworth Box in

⁸¹ The National Water Act (NWA) (No. 36 1998) was in the process of implementation during the time of research.

Figure 6.6, the production point for the system was outside the efficiency curve. The case was a political climate characterized by practices of high economic costs. Nevertheless, as discussed in the case study, the drought experiences may have introduced the inefficient practices, however what sustained them and in fact allowed them to grow even more inefficient, were the strategic behaviours on the part of the Middle KRV farmers. These farmers had most of the political power in the system. Hence, even though strategic behaviour of self-maximising actors may have rewarded the Middle KRV in the short, on the whole the KRV suffered from the practices.

On the other hand, what may explain the reason why the Lower KRV farmers could still tolerate the stringent practices on water releases, even though they strongly complained about the poor water quality levels allowed in Kat River, were the reported available alternative sources of water from other streams from the sub-catchments as illustrated in Map 6.4. The exploitation of alternative water sources was itself an efficient practice. In fact this water allowed the Lower KRV farmers to develop their land for citrus irrigation at quite a high rate to an extent that the Middle KRV farmers expressed worries about the land developments. The worries were enhanced by uncertainties of how the future water rules would affect water distributions with the implementation of the NWA (No. 36) of 1998. In this sense, it seemed that the isolated institutions were highly interdependent in their positive and negative contributions towards the development efforts in the KRV. To some degree, the effects appeared to be distributive, where the Middle KRV farmers were restrained from growing (due to land scheduling) whereas the Lower KRV farmers could grow their production aided by exploitations of alternative water sources.

The constitutional rules

Most of the formal rules for the allocation of water resources were historical and based on the geographical and political structure of the river basin. For instance, the riparian water rights, as promulgated by the Water Act (No. 54) of 1956, formed the foundations for the formalised future practices in the valley. The water-land scheduling system, which was instituted after the construction of the Kat Dam in 1970, was easy to introduce onto the riparian rights system, which were already in place. The major problems of the scheduling system in the KRV, however, was in

terms of, a) its unavailability to all actors (e.g. Lower KRV farmers), due to the nature of the watercourse as well as, b) the limitations it imposed with regard to land developments on those who had no choice but to adopt it (i.e. some of the Upper and Middle KRV farmers). Needless to say that any system, which limits choices in such a crude manner (i.e. technical exclusion), would only enhance economic efficiencies. Nonetheless, the case study illustrates how these inefficiencies were inherited from historical policies and thereafter amplified by later developments in the KRV. It is for these types of inefficiencies that the current national policies, which are aimed at promoting freer water trades, have been formulated, e.g. the National Water Policy (NWP, 1997). It is apparent that the historical policies and subsequent developments in the KRV introduced and sustained huge social costs.

The creation of the former Ciskei entailed a relocation of white farmers from the Upper KRV and a creation of new political boundaries. Hence, it could be imagined that the water allocation rules in the Upper versus Middle and Lower KRV would be formally different. However, data from the Water Users' Association (WUA) records illustrated that the same rules applied, *at least in principle*, across the KRV. It was argued, however, that the state of underdevelopment in the Upper KRV ensured that different informal rules applied to the case of emerging farmers in small irrigation schemes. For example, even though it was expected of the Upper KRV to pay for water scheduling of around 700 hectares of land, the records of the KRV WUA indicated that they did not keep up with these payments. In fact, the emerging farmers did not even use half the amount of officially scheduled land that they were officially expected to pay for by the WUA. This was a classical case where socio-economic conditions ensured that the formally coded rules were completely ignored by some sectors, in this case the poorer sections of the community. Moreover, the only effect that the political boundary had on the different sections of the KRV was a propagation of economic inequalities, which also led to different applicable rules. From the case study it was not clear how the different application of formal rules affected the development of the KRV as a whole. Hence, the transactional cost-contributions to development in the KRV, associated with the discriminatory application of formal rules regarding allocations, could not be immediately inferred. However, the *Coase (1960) theorem* would conclude that the non-enforceability of rights or formal institutions should have associated social costs. Politically, the downstream farmers

voiced complaints about the non-payments from the Upper KRV, as reflected in the WUA records. However, it did not seem that actions would be taken to recover the payments, because of the *non-politically correct* implications these actions might have. Nonetheless, a classical economic conclusion would be that such institutions would have high cost contributions to the development of the valley.

What was also particularly intriguing or significant with regard to the postulations of the PE model and the economic conditions of the Upper KRV was that even though the location was well endowed with land and water resources, owing to its upstream position, it still lacked productivity. The case illustrated how the model was inadequate in explaining or predicting the low productivity based only on geographical location and natural resource endowment. It seemed, however that there was a circular relationship between the economic conditions of the area, the observed inefficient institutions and their historical origins. Some kind of a poverty trap, it appeared, had been established, whose escape would only come through external intervention. Nevertheless, a conclusion was reached that because of the nature of most institutions that were observed in the Upper KRV, redistributive policies pertaining to tangible resources such as access to water rights, irrigation infrastructure and land resources would not be effective in the short term. That was if the institutions themselves remained unchanged.

The rules of trade

As already mentioned, not too many institutions in the case study were concerned with water trade. The lower KRV farmers, however, had to pay a fee to have water releases from the dam, for reasons that included the flushing of the river to reduce pollution. Payments for the flushes were made to the KRV WUA. However, in 2006 the Department of Water Affairs and Forestry (DWAF) through the NWP (1997) and Water Research Commission were in the process of implementation a system of water licences, not only in the KRV but also in catchments in other parts of the country as well. The water licence system, which was primarily based on free market principles, would be more efficient given the principles' lower associated transactional costs. However, this would also depend on *appropriate institutional frameworks* being in place. During the time of research the NWP's (1997) implementation process,

however, had proved itself to be quite cumbersome, which meant that the inefficient current institutions would remain unchanged for some time. The current institutions had high transaction costs, whose contribution to development was clearly negative.

In the Upper KRV, on the other hand, there simply were no applicable water allocation rules. Water was mainly thought of as a free communal resource. Emerging farmers were prepared to pay for irrigation infrastructure such as water pumps and electricity, but not the actual water for irrigation purposes. As argued earlier the accepted practice was inefficient. However, it could not be concluded that if the emerging farmers were forced to pay for their irrigation water the enforcement would lead towards better business practices or any economic development, or whether it would lead to their exit from the farming sector. An evaluation of many of the dominant institutions, and their perceived economic contributions to development, with regard to emerging farmers is carried out in the next section.

7.2.3 The case of emerging schemes

Of the three documented KRV studies, it seemed that the case of emerging farmers was the one characterised by the biggest institutional challenges to development. In line with Sen's (1983:754) argument, discussed in chapter two, of 'entitlements' and the political 'capabilities' that they generate to achieve development, the case best illustrated how being incapable of empowering oneself, because of a lack of skills and an environment conducive to the use of those skills would lead to a situation where an acquisition of physical resources, e.g. irrigation infrastructure and water resources, would not make a significant impact. Table 7.3 presents the political and business institutions at Hacop using Williamson's (2000) framework. From the table, it can be seen that the majority of applicable rules were informal, which would be expected from a business entity based within a rural and traditional economy. The few trading rules that were identified were only at their proposal stages. The evaluations of a majority of Hacop's business practices concluded that they were highly costly to the survival of the scheme and its growth.

Table 7.3 Institutional themes from the case of emerging farmers

Foundational institutions	Constitutional or contract rules	Trading rules
<ol style="list-style-type: none"> 1. Unstable historical political climate 2. Bottom-up development initiative 3. Collaboration between three villages 4. Loose agreement on use of irrigation equipment 5. Separate financial accounts 6. Flouting of constitutional provisions 7. Flouting of management systems 8. Continuous external support 9. Centralised power/dictatorship 10. Information asymmetries 	<ol style="list-style-type: none"> 1. Temporary land lease agreements and later insecurity of tenure 2. Ineffective constitution 3. Adoption of two land management systems 4. Planting roaster system 5. Management system of irrigation equipment 6. Seemingly uncoordinated government policies 	<ol style="list-style-type: none"> 1. Lack of marketing plans 2. Proposed Da Gama partnership 3. Proposed business Trust

Foundational institutions

It was significant that the Hacop scheme was established within a politically unstable environment in 1994. Businesses are generally not expected to prosper within such political climates. Hence the political uncertainties should have signalled that the scheme would have a difficult life span. That is the principal reason why the DLA land lease was only of a temporary nature and as pointed out in the preceding chapter led to a situation where the farmers were exposed to further insecurities to land resource access, which proved to be detrimental to business.

The bottom-up approach to the establishment of the scheme was another significant development in the Upper KRV area. The fact that individuals within the community took the initiative to establish the business was encouraging in the sense that the scheme was then most likely to have been established to serve local needs. Such an approach would be less likely to have high associated social transaction costs when

compared to externally imposed initiatives. However in the specific case of Hacop, the negative aspect of this localized initiative was that only two individuals drove the process. This factor later led to a centralised form of leadership, with dictatorial tendencies, which also became the root of many reported challenges that unfortunately led to the scheme's hardships, which were observed during the research period.

The dictatorial tendencies also led to a flouting of the scheme's constitutional provisions with regard to holding regular elections for leadership posts. This further deteriorated into flouting many of the scheme's formally written rules, such as its financial management system, and eventually led to the establishment of separate accounts for the three branches. The developments signalled a breakdown of a cohesively run organisation and contributed negatively to sustainability and growth.

At a historical level, the agreements between the *now defunct* Ulimocor and the farmers with regard to the use of irrigation equipment also created future uncertainties. The Fairbain branch members were not sure whether they could have any legal claim to the equipment they had inherited. Such was especially problematic in the light of the branch's intentions to formally register a Business Trust. The registration of the Trust would be delayed while attempts were made to establish the scheme's legal position with regard to the equipment. That other villages, e.g. Hertzog, were no longer actively farming further complicated the legal issue. These factors negatively contributed to any envisioned business growth.

With regard to cooperative governance, even though the external support received by the scheme had decreased in comparison to the early periods, the continued support from government agencies may have actually ensured that a relationship of dependency on outside assistance was created. The lasting effects would be detrimental to the scheme's sense of self-reliance. These were made obvious when extension officers, who had provided marketing support for the scheme's products, left the scheme taking away with them their established networks and skills and leaving the farmers without market channels. The relationships of high dependency on external assistance contributed high associated costs to the business.

Constitutional rules

Besides the challenges of the insecurity stemming from an expired lease to land access and poor leadership problems, which led to the flouting of the constitutional and financial management systems, it was however encouraging, and expected, that the farmers continued to observe some of their formal operational management rules. These included the planting roaster system and the management of irrigation equipment. As discussed in the case study in chapter six, the observation of these systems may have been indicative of the positive outcomes from skills workshops conducted for the scheme by external agencies. Without a doubt the contributions, however limited they may have been, to the scheme's sustainability from a strict adherence to these rules were positive.

With regard to land management rights regimes, on the other hand, by the late 1990s the DLA (2002) reports demonstrated that the Hertzog and Fairbain communities had each embraced two different types of management systems. While members of the Hertzog community were happy to have their land subdivided into smaller plots for private access and management, the Fairbain farmers were opposed to such a system and preferred communal access. Hence chances of having an organisation cohesively run, as an effective business, by the two farming communities would be slim. Fortunately by the time the difference preferences for management styles were adopted the villages were already no longer operating as a unit, especially in financial terms. Nonetheless, what this may have also signalled was that it would be difficult if not impossible for the villages to ever operate within a single umbrella body in future. Hence, Hacop would never exist in the manner in which it was once envisioned and configured in 1994. One important implication from the development could be that the old Hacop needs to be disbanded. The farmers in various braches need to establish new business entities for separate growth prospects.

Trading rules

As already mentioned there were hardly any formal trading practices to speak of in the case of emerging farmers. The observation illustrated the poor formal nature of Hacop's business. For instance, the lack of marketing plans was reported by members

to have been the greatest challenge facing the scheme. The departure of extension officers was central to the problem. However, the two proposals to a) develop a business partnership with Da Gama Textiles, and b) establish a Business Trust were two future developments that would be able to assist the scheme to create a formal platform for business trade and expansion. If successful the proposals, to varying degrees, would have welcomed positive contributions to economic development.

The following subsection, based on the foregoing discussions, qualitatively evaluates the institutional factor contributions to the economic development from each of the KRV cases. The summaries of the social transactional costs associated with each factor are presented in Table 7.4 for the KRV as a whole.

7.2.4 A qualitative evaluation of social transaction costs of institutional factors

North's (1992) conclusions, which were presented in chapter three, were that inefficient institutions have high associated transaction costs. Normally, institutions that have the highest costs are least likely to survive in a competitive market process of natural selection. In cases where inefficient and socially expensive institutions remain dominant over time, and where the least costly institutions are not selected in societies, explanations for these choices are usually political. Nonetheless, Tables 7.4a to 7.4c use an economic market approach to qualitatively value the contributions to the development process of the institutions discussed from each of the KRV cases. The valuations enable conclusions to be made on the cases' most likely paths to development. The conclusions are purely based on the socio-economic efficiencies stemming from the various institutions as well as how these would indicate the potential developmental paths of social systems. In section 7.3, the historical evolutions of the same institutions are mapped out using Saleth's (2004) framework to evaluate their historical robustness, which is also important in determining the potential developmental paths of systems.

In the Tables (7.4a to c) an incremental and qualitative contribution ranking system is used to compare each institution's potential contributions to social transaction costs following the Williamson's (2000) discussion. That is;

'minimum =1 point';

'medium=2 points' and

'high=3 points'.

Institutions that were consistently argued to have hugely contributed to the state of underdevelopment in each of the cases and hence high social costs are assigned a high ranking of *'3 points'*, while those which were argued to have had little contributions to socio-economic transaction costs are assigned no ranking, which implicitly signals a *'zero point'* value assignment. Based on the sum of ranking points assigned to each category of institutions, deductive judgments are made on their contributions to the state of underdevelopment. For instance, in each of the tables, if a total sum of points for each category is greater than the average of an associated and given range, the total values are increasingly shaded to indicate their rising significant contributions to underdevelopment. In Table 7.4a, for instance, from the ranking point system⁸² as well as the level of shading, the contributions to underdevelopment from informal institutions practiced in the case of black citrus farmers are above average⁸³ and therefore highest relative to other categories. Put differently, among other things, the conclusion indicates that the informal practices of black citrus farmers have high negative contributions to the group's development and hence should be discontinued. The various research and policy implications from the conclusions are discussed in the last section and forthcoming chapter.

⁸² A total of 8 points, within a possible range of 0 to 12 points

⁸³ For instance the greater the deviation from the mean is, on the right hand side of a given distribution curve, would indicate a higher institutional contribution to transactional costs.

Table 7.4a A qualitative evaluation of the case of Black Citrus Farmers' institutions to social transaction costs and development

The case black citrus farmers	Institutions	Qualitative evaluation of contributions to transaction costs from discussion (No contribution=0)			Total points
	Foundational	Min=1	Med=2	High=3	
	1. Political corruption 2. Absent landlords 3. Commitments to outside of farming interests 4. Inter-group conflicts & occupations		X X?	X X	
Index points:		1	4	3	8 (above average) (possible range of: 0 to 12)
	Constitutional 1. The insecurity of tenure, 2. The debt records of black farmers 3. Implementation of public policies for developing emerging farmers 4. Proposals for new business ventures, 5. The historical legacy of former Ciskie's legislation	Min=1	Med=2	High=3	
			X X X?	X X	
Index points:		1	4	3	8 (~average) (possible range: 0 to 15)
	Trading rules 1. Export demands for citrus products* 2. The local marketing strategies 3. Diverse voices in future business planning at Katco* 4 Singular and cohesive business planning at Riverside S.A.	Min=1	Med=2	High=3	
		X	X		
Index points:		1	2	0	3 (below average) (Possible range: 0 to 12)
Total points for the case study	(?) contradictory evidence meant that it was difficult to make a decision *a positive contribution to development (zero costs)				19 (~average) (Possible range: 0 to 39)

Besides the relatively high contributions of informal institutions to social transaction costs in the case of black citrus farmers, the total sum of '19 points' within a '0 to 39' range (the bottom row of Table 7.4a) indicates that, on average, considerably less negative contributions to the group's economic development, stemmed from other institutional factors and interventions. Such factors, with little or zero transaction costs to development, would include the growing citrus export demands coupled with business proposals from organizations like Riverside S.A.

In Table 7.4 (b) the same valuation process is applied to the case of water allocations among irrigators along the Kat River. Among other things, the results illustrate the validity of selected postulations of the Physical Externality model, which concluded

that in this type of a geographical watercourse undesirable inefficiencies stemming from production input uncertainties would exist.

Table 7.4b A qualitative evaluation of the case of Water Allocation institutions to social transaction costs and development

The case of water allocations	Institutions	Qualitative evaluation of contributions to transaction costs from discussion (No contribution=0)*			Total points
		Min=1	Med=2	High=3	
	Foundational				
	1. Stringent water releases post the drought periods 2. Strategic behaviours 3. Risk aversion 4. Abstraction of water from alternative sources	X X	X	X	
Index points		1	2	3	6 (average) (Possible range: 0 to 12)
	Constitutional				
	1. Riparian water rights 2. Scheduling land rights 3. Relocation of white farmers 4. Non payment by Upper KRV 5. Geographical boundaries 6. Technical exclusion of the Lower KRV 7. High endowment of physical resources in the Upper KRV	X	X?	X X X X	
Index points		1		15	16 (above average) (Possible range: 0 to 21)
	Trading rules				
	1. Payments for releases 2. Inefficient water uses 3. Allocation tensions 4. Lack of marketing plans or skills in the Upper KRV 5. Proposed water licenses	X	X?	X X	
Index points		1	2	6	9 (above average) (Possible range: 0 to 15)
Total points for the case study	(?) contradictory evidence meant that it was difficult to make a decision *a positive contribution to development (zero costs)				31 (above average) (Range: 0 to 48)

In the case summarised in Table 7.4b the highest contributions towards inefficiencies or social transaction costs originated from formal institutions and trading rules respectively. A total of '16 points ranking' was well above the mean given the range of '0 to 21' for the *constitutional/formal* institutions. It was discussed in chapter six that most of the formal institutions in this system were inherited from pre-1994 water policies, for example the riparian water rights as promulgated by the Water Act (54) of 1956 and the land scheduling system, which was applied to the KRV after the construction of the Kat Dam in 1970. The total points ranking for the whole case

study (the bottom row of Table 7.4 b)⁸⁴ indicate a poor assessment of how the observed water allocation practices in the KRV have negatively contributed to the process of development.

Results and conclusions that logically follow from the discussions of the case of emerging farmers in the Upper KRV are presented in Table 7.4 (c).

Table 7.4c A qualitative evaluation of the case of the Upper KRV's Emerging Farmers' to social transaction costs and development

The case of emerging farmers	Institutions	Qualitative evaluation of contributions to transaction costs from discussion (No contribution=0)*			Total points
	Foundational	Min=1	Med=2	High=3	
	1. Unstable historical political climate 2. Bottom-up development initiative 3. Collaboration between three villages 4. Loose agreement on use of irrigation equipment 5. Separate financial accounts 6. Flouting of constitutional provisions 7. Flouting of management systems 8. Continuous external support 9. Centralised power/dictatorship 10. Information asymmetries	X	X X X?	X X X X X	
Index point		1	6	15	22 (above average) (Possibly range:0 to 30)
	Constitutional rules	Min=1	Med=2	High=3	
	1. Temporary land lease agreements & later insecurity of tenure 2. Ineffective constitution/rules 3. Adoption of two land management systems 4. Planting roaster system 5. Management system of irrigation equipment 6. Seemingly uncoordinated government policies	X X	X	X X X	
Index points			2	9	11 (average) (Possible range: 0 to 18)
	Trading rules	Min=1	Med=2	High=3	
	1. Lack of marketing plans and skills 2. Proposed Da Gama partnership 3. Proposed Business Trust	X X		X	
Index points				3	3 (Possible range: 0 to 9)
Total points for the case study	(?) contradictory evidence meant that it was difficult to make a decision *a positive contribution to development (zero costs)				36 (above average) (Possible range 0 to 57)

For instance, the majority of institutions that were relevant to emerging farmers were informal and most had high economic contributions to social transaction costs. That is illustrated by the well above average deviation of '22 point total' within a '0 to 30'

⁸⁴ A '31 points' total in the range of '0 to 48' is well above a possible average

possible range for foundational institutions. The assessment of all the institutions observed by subsistence farmers (bottom row of Table 7.4 c) also illustrates how likely it was that the area, without any meaningful intervention, would not be headed towards growth and development. The ‘36 points total’ for all institutions was also well above average given the ‘0 to 57 point range’.

The institutional valuation of social costs from all the three case studies, using Williamson’s (2000) hierarchies, shows that the two *most economically inefficient* cases were those of the *emerging farmers* followed by the *case of water allocations*. The most obvious implication from the observation is that the two systems would obviously require a higher level of policy attention aimed at eliminating institutions with the highest social costs and replacing them with the most appropriate ones. On the other hand, the case of black farmers appeared to be the most promising in attempts to achieve development, at least in the long run, again if costly institutions were eradicated.

Nonetheless it was proposed in chapter one that for economic research in general to have a real social meaning and more accuracy in its results and conclusions; over and above a qualitative valuation of socio-economic effects of institutions on economic systems (as illustrated in Tables 7.4 (a to c) quantitative estimations of the same transactional costs could be to be undertaken, using more formal tools. For example, in the presented case of the water allocations, a Cost-Benefit Analysis (CBA) could be employed to estimate the actual monetary value of social costs associated with the implementation of the land scheduling system after the Kat Dam’s construction in 1970. However, and very important to stress is that the analysis cannot take place in an institutional vacuum, which appears to be common practice in some published research whose examples are reviewed later in section 7.6. Otherwise an illustrative presentation of an appropriate methodological role and usage of complementary formal tools to institutional research is undertaken in section 7.5.

However before an illustration of a formal treatment is presented, the institutions with the strongest historical origins are identified as those that would be the most difficult to eliminate using external interventions. The identification and conclusion are based on the basic institutional thesis that the trajectory of well-established institutions is

path dependent⁸⁵. These institutions are resilient to change. The evolutionary framework by Saleth (2004) in this case is used to determine which ones of the institutions presented in Tables 7.4 (a to c) would be the most likely to challenge external policy interventions aimed at their elimination. The evolutionary evaluation sheds light in answering questions surrounding the most probable developmental trajectories in the KRV, with as well as without policy interventions.

7.3 EVOLUTION AND DEVELOPMENTAL PATH IMPLICATIONS

In chapter one and three it was proposed that the hierarchical (Williamson, 2000) and evolutionary (Saleth, 2004) analyses of institutions as frameworks for economic research should precede any usage of formal methods, for example econometric or statistical methods, which require hypothetical questions to research be stated *a priori*. The institutional analyses should provide the foundations for these formal hypotheses and subsequent investigations. An understanding of institutional impacts and contributions to socio-economic systems and costs, respectively, enforces a deep and broad appreciation of the economic system. Only from the broad understanding of the system can meaningful hypothetical and formal questions be postulated. In simplified terms, quantitative and/or statistical estimates of economic costs and/or benefits in given social systems could only be undertaken following institutional research presentations of summaries similar to those presented in Tables 7.4 (a to c) and Table 7.5 of the present section.

As already mentioned an evolutionary framework following Saleth (2004) provides an added understanding and insight into the progression and robustness of institutions based on their history. A long history of institutions therefore indicates the high robustness of particular institutions, which in turn becomes an indication of the resilience to policy interventions of both good and/or bad institutions. Faced with robust institutions, policy interventions have trouble influencing the course of development in given systems. More specifically, in the KRV cases for instance, over and above the valuations of transactional costs, which were summarised using Williamson's (2000) framework, the evolutionary analysis enables an identification of

⁸⁵ A detailed discussion of the thesis was presented in the review of institutionalism in chapter three

institutions with long and strong historical origins, as the most useful in predicting potential (under) development paths. Hence, strategic policy formulation should pay special attention to these types of institutions.

What an evolutionary investigation should achieve are the following,

- a) a presentation of an historical account of economic transactions involved in preserving socially dominant institutions,
- b) a discussion of the political processes through which societies negotiate the rules and practices that culminate in the preservation of the most robust institutions, and
- c) an analysis of the strategies used by individual actors and/or groups in market competition games played within socially agreed upon rules (e.g. market engagement rules or agreements like business contracts).

7.3.1 An historical account of economic transactions

From the presentation of the KRV cases, various institutions were identified as having emerged at different times in the 20th century history of each social system that they affected. In Table 7.5, the time frames around which the most significant or dominant institutions (based on the cost valuation from the preceding subsection) became effective are indicated alongside the agents or events leading to their emergence as well as the extent of their effects in the KRV. The institutions with the highest and lowest contribution costs to economic development are identified as the most significant. In applicable instances specific events and/or public policies are linked to the emergence and entrenchment of these institutions. For instance, the growth of citrus export markets in the late 1990s could be linked to trade liberalisation policies of the early 1990s, while the technical exclusion of the Lower KRV farmers in water allocations from the Kat River owes its emergence to the Dam's construction in the early 1970s.

Table 7.5 A summary of significant institutions and their history

Institutions	Agents and event/s leading to emergence	Period of emergence *	Affected social systems of the three case studies
Insecurity of tenure	Colonial settlements and conflicts, traditional systems during homeland rule	Late 1800s and reinforced in the early 1970s	All cases (-ve)
Riparian water rights	National policy	1950s	All (-ve)
Scheduling land rights	Provincial and local policies	Early 1970s	All (-ve)
Relocation of white farmers	National policy	1970s	All (-ve)
Technical exclusion of the Lower KRV	Provincial. Policy	1970s	Two (-ve)
High endowment of physical resources in the Upper KRV (e.g. water)	National and provincial. policy	1970s	Three and potentially all (-ve)
The legacy of political corruption	Creation of Ciskei	Early 1970s	All (-ve)
Inter-group conflicts	Relocation of black Citrus farmers through Ulimocor	Early 1980s	One (-ve)
Export demands for citrus products	Trade liberalisation/ National government	Late 1990s	One and two (+ve)
Stringent water releases post the drought periods	Middle KRV farmers	Early 1990s	Two (-ve)
Singular and cohesive business planning	Riverside S.A.	Late 1990s	One (+ve)
Inefficient water uses	Risk aversion and business strategies	Early 1990s*	One and two (-ve)
Unstable political climate /political transition	National government	Early 1990s	Three (-ve?)
Bottom-up development initiatives	Local agents	Early 1990s	Three (+ve)
Proposed water licenses by new water legislation	National policy	1997	All (+ ve ?)
Flouting of constitutional provisions and management procedures	Local leadership	Late 1990s and 2000s	Three (-ve)
Centralised power/dictatorship	Local leadership	Late 1990s and 2000s	Three (-ve)
Information asymmetries	Local leadership	Late 1990s and 2000s	Three and potentially one (-ve)
Adoption of two land management systems	National policy	2000s	Three (-ve)
Seemingly uncoordinated government policies	Provincial/National policies	2000s	One and three (-ve)
Lack of marketing plans or skills	Historical legacy of Apartheid and paternalism	2000s	Two and three (-ve)
Proposals of new business ventures	Riverside S.A.	2004	Directly one and potentially three (-ve)

- The institutions are presented as chronologically as possible using column three
- Often, institutions of the same time period have some relationship or interaction
- In the last column, the graded shading indicates the extent to which a particular institution affects more than one case studies (the darkest shading indicates effect across all three systems)
- The +ve and / or – ve signs indicate the-institutional contributions to development from valuations in section 7.2

Of these dominant institutions a number of them had long histories of over twenty years, for example the state of insecurity of land tenure and riparian rights policies. These institutions, whose emergence period is in bold fonts, according to Saleth's (2004) evolutionary framework would be the most resilient to agents and/or activities

aimed at encouraging their replacement or change. From the table at least eight of such institutions can be identified, namely:

- a) insecurity of tenure, which was first propagated by the colonial settlements and conflicts of the mid to late 1800s, and later reinforced through traditional governance systems after the creation of former homelands,
- b) legislation of riparian water rights, which were promoted by the Water Act (54 of 1956),
- c) political corruption, which was propagated by the former Ciskei government,
- d) land scheduling system, which was adopted after the construction of the Kat Dam in 1970
- e) the relocation of white farmers from the Upper KRV by the South African government,
- f) conflicts among black citrus farmers and former farm labourers, propagated by the Ulimocor's projects,
- g) the technical exclusion of Lower KRV farmers, which stemmed from the adoption of the land scheduling system , and
- h) the under utilisation of high water resource endowment in the Upper KRV after the construction of the Kat Dam.

The most striking feature of the institutions is that, for the most part, the agents and/or events to which they owe their promulgation are formal government policies. In cases where they may have emerged or were encouraged by social and/or political events, for example the case of land insecurity⁸⁶, once deeply entrenched the institutions themselves led to subsequent formulations of other public policies, which then ensured their long term sustainability. The formalisation of the homeland systems in the 1960s and early 1970s⁸⁷ was in most parts enabled by the early colonial conflicts and related legislation, which promoted racial segregations, for example the Natives Land Act (27 of 1913). Other examples of this circular and self-reinforcing process could be observed in the direct relationships between, a) the effects of adopting land scheduling system which in turn allowed for an exclusion of the Lower KRV farmers from formal access rights to water resources, and b) the political corrupt practices of the former Ciskei which led to formal arrangements that enabled the KRV settlement

⁸⁶ Which was promulgated by colonial conflicts and traditional systems

⁸⁷ For example through the enactment of the Bantu Homelands Citizenship Act (26 of 1970)

of black citrus farmers, which in turn led to conflictual relations between the farmers and former labourers. It is clear that whether the initial institutional agents were formal or informal, over relatively long periods of time the institutions tended to either reproduce or protect themselves in the form creating a self-supporting environment filled with other similar institutions. The institutions may emerge as informal cultural practices or beliefs but over time and depending on how strongly accepted they were, would become formalised. This is a particular illustration of the path-dependency hypothesis, which has been recurring throughout the thesis (also refer to North, 1992 and Williamson, 2000, Evensky, 2004, etc.). Hence, the long histories or resilience of most institutions, which are presented in Table 7.5, have links that could be traced to more recent practices and events. Such institutional links are depicted as ‘the wave’ of old institutions, whose emergence appears to be from the late 1800s in Figure 7.2.

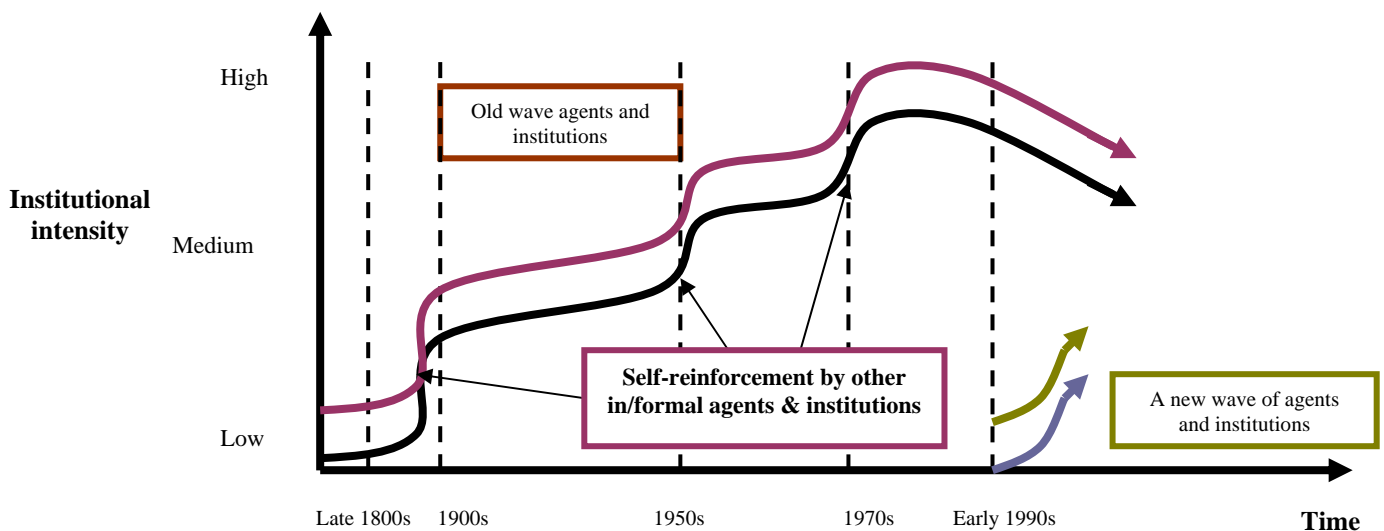


Figure 7.2 The self reinforcing institutional waves

The ‘old’ institutional wave has remained dominant even after 1994. Moreover, from the table, it can be observed that *very few* of the dominant ‘new’ institutions (*whose manifestations do not have long histories*) have their emergence rooted in the ‘old’ institutional wave. The examples include the obvious linkages between the presently observed shortages of black technical and business skills (which are part of the ‘new’ institutional wave) to the ‘old’ development policies of racial segregation. In fact, a sharp distinction could be drawn between the ‘old’ and ‘new’ institutions as depicted in Figure 7.2. Most of the institutions whose emergence began in the 1990s do not

seem to have strong connections to the older set. A ‘new’ wave of interrelated in/formal institutions appears to have begun its evolution in the early 1990s. Moreover, like the older set, the new institutions are also self-sustaining. For instance, throughout the discussion, there were strong linkages between poor leadership and informational asymmetries, which were portrayed in the case of subsistence farmers, and there were connections between the uncoordinated provincial policies and lack of information flows concerning policy objectives, which were discussed in the case of black citrus farmers. Nevertheless, the level of the effect of the new institutions on all KRV systems (also owing to their short histories) appeared to be of a low intensity. This is also depicted in Figure 7.2. While the effects of the old institutions remained strong, the impacts of the new set were growing, and in some instances they appeared to be replacing the effects of the old. For example, at a national level, the formal water licences (e.g. the National Water Act (NWA), 36 of 1998) have been formulated as deliberate measures to replace the dominance of old riparian based water rights (Water Act 54 of 1956), and the redistributive policies from various provincial departments, which were discussed in the case of black citrus farmers, as well as the proposed business ventures have been proposed to eliminate the negative effects of land tenure insecurities. However, whether such objectives will actually be achieved, at this point and with the current regime of policies, remains indeterminate, especially in the light of the valuations and conclusions (pertaining transactional costs), which were reached in the last section. In those discussions as well as in the summary presented in Table 7.5, most of the institutions (old and new) have negative contributions towards the development process with an exception of a few.

Nonetheless, what is clear from the historical trajectories of the dominant institutions in the KRV, which are depicted in Figure 7.2, is that there are forces often with political leverages, which propagate the growth as well as the formalisation process of particular rules and practices. Obviously in traditional societies and prior to colonial settlements most, if not all, institutions were informally coded. The proliferation of formal institutions only intensified with the colonial settlements. In the political selection process of institutions, which would later become dominant, it was often the military supremacy of settler groups that was an important factor in racial conflicts and/or negotiations around whose rules and practices would be socially acceptable. It appears that little or no economic considerations played a significant role in those

bargaining and selection processes, because most of the institutions that became the order of the day would eventually prove themselves to have been quite economically inefficient (refer to Table 7.5 summary).

7.3.2 The political process of negotiating rules for engagement

Although Ostrom's (1990:1-23) game theoretic assertions (illustrated by the Prisoner's Dilemma model), and to some extent North's (1992) transactional cost theory, postulate that the most sustainable institutional arrangements are those that present minimum transactional costs to bargaining groups and/or societies, the conclusions reached in the preceding sections indicate otherwise, at least from the long-term perspectives. In the historical conflicts between bargaining groups in the KRV, economic efficiency does not seem to have played a significant role in the selection of dominant institutions. Nevertheless, North (1990) did also suggest that in various developing country contexts (similar to the KRV and South Africa in general) it was possible that inefficient institutions (with high costs) could be sustained for the sole benefit of politically powerful 'clicks', which exercised their power for political ends. In the KRV cases, the colonial settler groups, backed by the growing political power of the South African white controlled state and its policies possessed this type of power. Hence, the informal and formal wave of institutions prior to the early 1990s supported an environment, which benefited the colonial groups. At the same time the political environment must have only encouraged the sustainability of complementary traditional institutions, for example the system of common access to land and other resources, which were deepened in homeland systems. Moreover, it appears that formal and informal institutions that emerged and were embraced by groups other than the colonial settlers within a politically repressive environment would themselves become inefficient. For instance, the formation of homeland systems promoted a number of corrupt economic transactions, which were discussed at length in preceding sections and in chapter six. Among other things, what the discussion demonstrates is that a culture based on inefficiency has to breed more inefficiency to be sustainable. Within a non-democratic environment, where free bargaining is not encouraged and political power is not evenly distributed, it may be naïve to imagine that it is likely to have an emergence of a set of politically and economically efficient institutions, which could minimise administrative and economic transactional costs.

From the discussion, two important theoretical postulations arise. Firstly, given the strong historical dependency of institutional evolution, which has been illustrated, it is questionable to imagine that there may have even been a free bargaining process or processes, in line with Saleth's (2004) framework, that took place in the history of the cases studies. The KRV's history in fact casts doubt to the prudence of even attempting to apply the bargaining process aspect of Saleth's (2004) analytical framework in a manner that ignores the external political and powerful environment created by state agents with agendas, which were not economically based. Secondly, given the strong role of an external environment and political agents in the shaping, strengthening and formalisation of the KRV dominant institutions it appears that for similar contexts (in political and socio economic terms) it would be non-prudent (if not futile) to ignore the role of state interventions in influencing the developmental process. The second postulation is most relevant to the presentations of debates in the review of development economics in chapter two. The conclusion is that the state is at the centre of a developmental process in contexts similar to the Kat River Valley.

7.4 THE IMPLICATIONS FROM INSTITUTIONAL DISCUSSIONS

In sections 7.2 and 7.3, the Williamson (2000) and Saleth (2004) frameworks of analysis were applied to the KRV cases. Several observations and conclusions were reached concerning the nature and contributions to social transactional costs, and path dependencies of identified institutions respectively. Tables 7.4 (a to c) summarised the qualitative valuations of the transactional costs (and lack thereof) to contributions towards the process of development for each of the social systems investigated in the KRV. Based on the valuations, Saleth's (2004) evolutionary framework was used to identify institutions whose long histories signalled their robustness and dominances overtime alongside their important contributions towards social costs. In Table 7.5 and Figure 7.2, the findings were summarised.

These findings not only provided a historical presentation for an understanding of an institutional picture from the KRV, but they also provided a framework for designing policy intervention tools, based on qualitative research with objectives of promoting economic development. Moreover and relevant to the primary argument of the thesis,

the findings provide a framework for presenting formalised questions and designing tools for further quantitative research. A detailed presentation of implications for policy, based on the current research, is presented in chapter eight. A framework for designing and illustrating an appropriate and meaningful place for an application of formal tools founded on institutional work (as proposed in chapter one for the main argument in the thesis) is presented in section 7.5.

A comprehensive understanding of institutions, which was outlined in preceding sections and was summarised in various tables would most definitely provide a policy maker with a useful framework as a substrate to formulate socially appropriate policies to intervene in each of the KRV systems for development purposes. Following North's (1992) proposals for an encouragement to sustain institutions, which minimise social and economic transaction costs, it should be easy to realise that effective policy interventions in the KRV would, among other possibilities:

- a) Prioritise the Upper KRV, and the case of water allocations (among farmers) in the establishment of economically sound institutional arrangements. The most costly institutions were found to be in these two cases, with ranking points well above the mean values.
- b) In the case of emerging Upper KRV farmers, public policy would have to target the informal institutions in attempts to overhaul or eliminate socially costly practices, for instance the lack of compliance with collectively agreed upon rules like business constitutions.
- c) In the case of water allocations, most of the formal rules applicable to current water resources distributions (which also stem from past water and land policies) were socially costly and economically inefficient. Hence, it should not be surprising that the Department of Water Affairs and Forestry (DWAF) was in the process of implementing the National Water Act (NWA, 36 of 1998) during the time of research (Lotz-Sisitka and Burt, 2006).
- d) Once again, the case of black citrus farmers illustrated that the most socially costly institutions in the KRV were the informal unwritten ones. Hence, policy interventions could be directed at creating incentives to reduce corrupt dispositions and to relocate the former farm labourers from the citrus farm units in order to achieve higher productivity levels and to eliminate the inter-group conflicts.

These are only some of the policy implications specifically based on the investigations of the KRV cases. What is also important for policy formulation is an understanding that the implementation of solutions would have to be holistic, targeting the most crucial aspects of the social costs, which are highlighted from the preceding discussions and summaries. However, it is likely that for policy considerations too many institutional variables were highlighted, especially in section 7.2, with high budgetary implications for interventions. Therefore, an understanding of the historical origins and robustness of institutional factors, which were presented in section 7.3, should provide further insight in strategies aimed at cost effective interventions. Table 7.5, provided not only the relative histories of dominant institutions, but also the extent of their effects on each of the case studies. A well thought out strategy therefore would be one that accounts for these histories, extent of effect on systems over and above the positive and/or negative transactional cost contributions of each institutional variable.

From the discussion of potential policy interventions, a broad understanding of how such policies could be identified, formulated and implemented is achievable. A more accurate understanding of budgetary implications, however, could still be attained through additional quantitative research. The quantitative research would only have meaning, however, if it were firmly grounded (and therefore only valid and economically significant) on the institutional findings presented thus far. Otherwise, any formal applications of quantitative economic tools conducted without a strong institutional base would have the shortcomings of the nature presented in the criticisms levelled against formal economic methods, which were discussed in chapter three. To reiterate these critical sentiments in the words of Coase (1998:73): such formal economic exercises only “become the study of blood circulation without a body”. In that analogy, the economists’ box of formal tools would only form ‘the study of the blood circulation’, while the institutional foundations as presented for the KRV in this research would form the ‘body’. An illustrative review of selected economic studies with these inherent shortcomings is presented in section 7.6.

Therefore, with all the debates and arguments presented in previous chapters and theoretical postulations made in the present chapter, the following section presents the

appropriate framework for conducting economic research, based on institutional investigations. In line with the primary objective of the thesis, which was presented in chapter one, the following section presents that important and logical interface between institutional and formal economic tools and its illustrative application. The framework demonstrates that the debates and seemingly opposing views between the various schools of thought, which were reviewed in chapter three, would be menial if the contributions of institutional investigations to economic research and methodology were understood within an appropriate context. The usefulness of formal methods in economic research should be that of a validating nature to the qualitative and institutional findings. Formal methods should provide institutional conclusions with quantitatively derived evidence. Moreover, one other benefit from such research would be a quantitative estimation of public budgetary costs required for appropriate policy interventions.

7.5 A FRAMEWORK FOR HOLISTIC ECONOMIC RESEARCH

It was argued throughout the current chapter that institutional investigations should form the foundations on which formal research tools could be employed. The discussions in sections 7.2 and 7.3 provided these institutional foundations. The generic formal econometric methodology (e.g. Gujarati, 2003:3-14), on the other hand, proposes that researchers should start the research process by postulating a statement of theory or hypothesis for investigation. However, the present discussion proposes that such advice is mainly relevant in physical scientific research, in social science (which includes economics), it is highly difficult (if not impossible) to formulate a meaningful hypothesis concerning dynamic social systems that are not institutionally understood. Hypotheses about social and economic behaviour as well as relationships between socio-economic variables can only be discovered from the findings of institutional investigations. They cannot be conjured up even from the brilliant minds that have not been adequately exposed to social systems under investigations. For example, the findings, which were summarised in Tables 7.4 (a to c) and 7.5, would be most suitable for enabling a discovery of hypotheses that could be formally or statistically investigated in a manner that is depicted *in the shaded interface column* of Figure 7.2. The figure illustrates the methods of research that are most appropriate for social science investigations. To a degree the proposal seems

similar to some of the criticisms labelled against the new classical economics presented by institutionalists like Evensky (2004) in chapter three. The difference, however, is that those arguments did not provide a theoretical framework, which clearly specifies the meaningful roles, in a methodological sequence, of institutional and formal methods in economic research processes. The framework with primarily linearly depicted stages (and possible feedback loops) for economic research is illustrated in Figure 7.3.

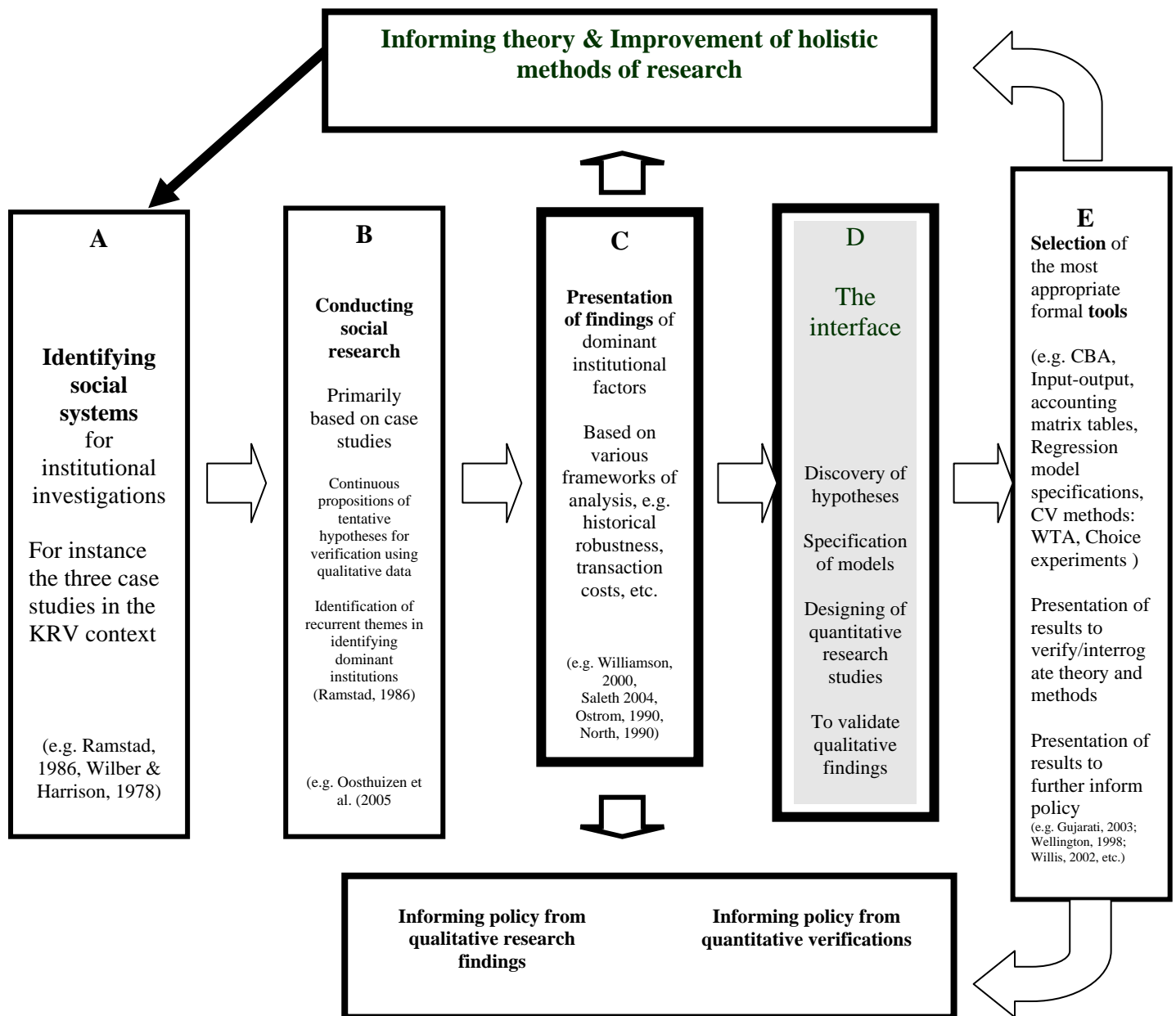


Figure 7.3 The institutional-neoclassical economic research methodology interface

The figure illustrates the proposition of a holistic research process, which integrates institutional and formal economic methods. Moving from *column A* on the left hand side, an economic researcher identifies social systems (e.g. the case of black citrus farmers) with particular socio-economic attributes for an institutional investigation within a geographical space (e.g. the Kat River Valley). Various methods of data collection and analysis (for instance case study methods) are chosen and then used, which leads to a presentation of institutional findings similar to those presented and summarised in sections 7.2 and 7.3 and relevant tables and figures. From discussions and analysis of the findings from institutional data, qualitative conclusions and recommendations are reached for policy considerations. Depending on the theoretical needs and further policy requirements, institutional findings are then used to formulate the various hypothetical questions, which need to be further investigated using appropriately chosen formal tools for quantitative investigations. It is important to note that at this point of the research process the hypothetical questions are readily identifiable from the findings of institutional investigations in *column D* of Figure 7.3. They do not exist in a researcher's mind as implicated in some economic research recommendations (e.g. Gujarati, 2003:3-14). Depending on the nature of formal questions that need to be answered, appropriate tools are chosen from what Coase (1998:73) calls 'a box of economic formal tools' for quantitative research methods. These methods include the Cost Benefit Analysis, Contingent Valuation studies, Regression model specification, etc. Hence a move from column C to E in Figure 7.2 depicts a transition from qualitative to quantitative research methods for specific research questions and policy needs. The interface between the two types of methods is depicted in *column D*. Moreover, a continuous dialogue between the various research findings, theories and methods is also illustrated by the feedback arrows, which connect the various columns in the figure. The connections imply that even though the research process is predominantly linear, it also acknowledges a presence of a number of dynamic features in real social research.

In an illustration of a possible departure and transition from the institutional findings, which were presented in preceding sections 7.2 and 7.3, to an application of formal methods, selected findings from Table 7.5 could be used to formulate a research hypothesis. The next subsection uses an Analysis of Variance (ANOVA) regression

model to investigate the effects of ownership of private land rights on economic development status.

The ANOVA illustration uses cross-sectional data from the 2004 KRV's household survey, one of whose questions required the heads of households to indicate whether or not they were in possession of a private land title deed (refer to Appendix 19). Their responses were either 'yes' or 'no', with coding of '1' or a '0', which means the variable is a dummy. A research statement for investigation is posed in the next subsection 7.5.1.

7.5.1 The possession of private land rights leads to a higher status of economic development

To investigate whether or not the statement is true for the purposes of this investigation, a higher state of economic development for individuals could be defined as possessing, among many other important attributes, a higher level of income earnings and years of formal education. Since the holders of land title deeds are normally the heads of households, the present investigation is limited to these members ($n=192$)⁸⁸ from the 2004 KRV sample (Appendix 19).

For purposes of simplicity the formal investigation is divided into two parts. The effects of possessing private land rights on average levels of income earnings are separated from an investigation of the rights' effects on the years of formal education. Separate linear functions for the two variables are specified⁸⁹.

The formal statement for average incomes of heads

The average income levels (μ_1) of household heads, which possess land rights ($n = 52$) are higher than those (μ_2) who do not possess them ($n = 125$):

$$H_0: \mu_1 = \text{or} < \mu_2$$

⁸⁸ Not all of the 192 heads answered the questions, which is indicated by the number of respondents reported in each of the regression analyses. For example $n=52$ for heads with rights and $n= 125$ for those without rights.

⁸⁹ The same statistical observations could have been achieved either by looking at scatter diagrams or by exploring the relevant means, without specifying the equations. But for illustrative purposes of the use of regression linear models, including multi variable models, the equations are specified.

$$H1: \mu_1 > \mu_2$$

The null hypothesis will be rejected if $\mu_1 > \mu_2$ and the difference between the means is statistically significant at a specified level of confidence. If the second condition is not met the possibility that H_0 may be true in another KRV sample cannot be rejected.

A specification of the ANOVA model for the formal question is:

$$INC_i = \beta_1 + \beta_2 LAN_i + u_i \dots \dots \dots (\text{eqn. 1})$$

Where:

INC_i = average income earning levels of heads of households

β_1 = constant

β_2 = the coefficient of the dummy variable if the heads possess private land rights (i.e. $LAN_i=1$)

LAN_i = dummy variable, indicating the (non) possession of land rights

u_i = error term

Assuming that the error term satisfies the Ordinary Least Squares (OLS) assumptions, the estimates of the means (income earning averages of the two groups) are as follows:

$$E(INC_i | LAN_i=1) = \beta_1 + \beta_2 \quad (\text{heads with land rights})$$

$$E(INC_i | LAN_i=0) = \beta_1 \quad (\text{heads without land rights})$$

The formal statements for average years of formal education of heads

The average years of formal education (μ_3) of heads, which possess land rights are higher than the averages (μ_4) of those who do not possess them:

$$H_0: \mu_3 = \text{or} < \mu_4$$

$$H_1: \mu_3 > \mu_4$$

The null hypothesis will be rejected if $\mu_3 > \mu_4$ and the difference between the means is statistically significant. Again if the second condition is not met the possibility that H_0 may be true for another KRV sample cannot be rejected.

A specification of the ANOVA model for the question is:

$$EDU_j = \beta_3 + \beta_4 LAN_j + v_j \dots \dots \dots (eqn. 2)$$

Where:

EDU_j = average years of formal education of heads

β_3 = constant

β_4 = coefficient of the dummy variable if the heads possess private land rights (i.e.

LAN_j = 1)

LAN_j: the dummy variable indicating the (non) possession of land rights

v_j = error term

Again, assuming that the error term satisfies the Ordinary Least Squares (OLS) assumptions the estimates of the means (average years of formal education of the two groups) are as follows:

$$E(EDU_j | LAN_j = 1) = \beta_3 + \beta_4$$

$$E(EDU_j | LAN_j = 0) = \beta_3$$

The results of regressing eqn. 1 and test of significance of mean difference

$$\text{For: } INC_i = \beta_1 + \beta_2 LAN_i + u_i \dots \dots \dots (eqn. 1)$$

The estimated results:

$$INC_i = 411 + 344 (LAN_i = 1)$$

i.e. $\beta_1 = 411$ and $\beta_2 = 344$

Hence:

the mean incomes earnings of heads with rights:

$$= E(INC_i | LAN_i = 1) = \beta_1 + \beta_2 = R756, \text{ and}$$

the mean income earnings of heads without:
 $= E(INC_i | LAN_i = 0) = \beta_1 = R411$

From the estimated means, which indicate that the hypothesis that the average income earnings of heads with land rights is greater than for those without the rights ($R756 > R411$, i.e. $\mu_1 > \mu_2$) is true. However, the null hypothesis (i.e. $H_0: \mu_1 = \text{or} < \mu_2$) can only be rejected if the difference between the two means is statistically significant within a specified 90% confidence interval.

The output estimates corresponding to β_1 and β_2 :

$INC_i =$	β_1	+	$\beta_2 (LAN_i = 1)$
Std. error:	(100.4212)		(185.2722)
t:	(4.1)		(1.86)
p values	(0.0000)		(0.065)

From the computation results, the mean difference is statistically significant with the p-value lower than 0.10, in a one-tail test. The implication is that the null hypothesis can be rejected at a 90% probability. In any case, even though from the 2004 KRV sample the average incomes of heads with land rights was higher than those without (i.e. H_1), there still remained a 6.5% chance that in another KRV sample the means of average income earnings of heads with land rights might be equal to or lower than μ_2 (i.e. H_0) and in this case R411. The point once again illustrates the assertion by McCloskey (1985) that the test of significance is a sampling challenge and not of economic significance or even the validity of the model specification, which she argued some researchers believe to be the case. In the case of the KRV survey, a bigger sample would most likely reduce the 6.5% probability of the null hypothesis being true by allowing a higher confidence interval (e.g. 95 to 99 %) in which the estimates may be significant⁹⁰.

⁹⁰ McCloskey (2008) noted that perhaps the turbulent history of South Africa and the relatively short period (of several years) in which this study was completed, could have blurred these findings. In good 50 years time, perhaps, the true effects of missing land tenure would be even more readily observable also by using statistical methods.

The results of regressing eqn. 2 and test of significance of mean difference

$$EDU_j = \beta_3 + \beta_4 LAN_j + v_j \dots \dots \dots (eqn. 2)$$

The estimated results:

$$EDU_j = 8 + 0.96 (LAN_j = 1)$$

i.e. $\beta_3 = 8$ years and $\beta_4 = 0.96$ years

Hence: the mean years of formal education of heads with rights:

$$= E(EDU_j | LAN_j = 1) = \beta_3 + \beta_4 = 8.96 \text{ years, and}$$

the mean years of formal education of heads without rights:

$$= E(EDU_j | LAN_j = 0) = \beta_3 = 8 \text{ years}$$

From the mean estimates the hypothesis that the average years of formal education of heads with land rights are higher than those without (i.e. $H_1: \mu_3 > \mu_4$) is true for the KRV sample (i.e. $8.96 > 8$ years). However, once again the null hypothesis (i.e. $H_0: \mu_3 = \text{or} < \mu_4$) can only be rejected if the difference between the two means is statistically significant within some specified confidence interval.

The computed estimates corresponding to β_3 and β_4 :

EDU _j =	β_3	+	$\beta_4 (LAN_j = 1)$
Std. error:	(0.5706)		(0.3061)
t:	(1.69)		(1.69)
p values	0.0000)		(0.093)

From the estimates, the mean difference is again statistically significant at a 90% confidence interval with the p-value lower than 0.10, in a one-tail test. With regard to the mean years of formal education there still remained a 9.3% chance that in another KRV sample the means of years of formal education of heads with land rights (μ_4) might be equal to or lower than μ_3 (i.e. H_0).

Implications of the discussion

The preceding interrogation of the 2004 KRV survey data was simple and straightforward because it served as an illustration of one of the many possible formal procedures that could be employed when analysing quantitative data. The chosen model specifications were simple and only used a single dummy variable for explanation purposes. However, according to the institutional findings in sections 7.2 and 7.3, the explanatory variable (i.e. private land tenure) was very dominant with regard to its valuated transactional costs. Hence the decision to analyse its impacts on the chosen determinants of economic development was economically significant. The negative impacts of insecurity of tenure on the process of development were reflected in lower income earning powers as well as in acquisition of formal education by heads of households. These effects were most robust with regard to incomes as they ensured that the average earning powers of heads, which were not in possession of land rights were almost half of those who held such rights. More importantly however, the illustration indicated the usefulness of relying on institutional data in formulating economically significant hypothetical questions and how the outputs from formal research should be able to validate and/or enhance an understanding of institutional factors. In the following section, evidence from case study reviews is presented to show how formal research, which lacks an adequate institutional foundation, could lead to socially costly and sometimes meaningless conclusions to policymaking.

7.6 COMPARATIVE CASE REVIEWS

In the preceding section an integrated research framework for conducting economic research was presented with an illustration of how formal tools could be used to complement institutional findings. Throughout the thesis it has been argued that the use of formal tools offers little social and policy meaning if hypothetical questions for investigation are not informed by institutional findings in the manner similar to one presented in section 7.5. To further support the argument, two recent agricultural studies in developing country contexts, which were heavily based on quantitative analytical tools and a glaring dearth of institutional grounding, are reviewed with their policy limitations outlined.

7.6.1 Review of a study on the land reform policy in Zimbabwe

In a journal paper entitled '*A quantitative analysis of Zimbabwe's land reform policy: An application of Zimbabwe SAM multipliers*', Juana (2006) applied a formal treatment to one of the most contentious economic research questions in southern Africa. A review of the paper's methods, conclusions and policy recommendations, however, points out a number of methodological shortcomings and hence policy dangers inherent in mostly purely mathematical approaches to research subjects, which are as complex as the political and economy-wide systems found in developing countries like Zimbabwe.

In an attempt to indicate and quantify the costs and benefits associated with the land reform process in Zimbabwe between 1980 and 2003, the paper exclusively explored quantitative data from secondary sources like the Central Statistics Office (CSO, 1998) of Zimbabwe and employed a modified version of the Social Accounting Matrix (SAM) used by the International Food Policy Research Institute (IFPRI) (Baustista and Thomas, 2000). The aim of the research was to investigate the hypothetical effects of a government policy transfer of land resources from mostly white and large-scale commercial farmers to mostly black and small-scale farmers since Zimbabwe's political independence in 1980. From the results, conclusions were drawn and policy recommendations offered with regard to the following variable effects:

- a) Agricultural output from all land resources in specified time periods,
- b) Gross value added, i.e. output minus immediate consumption, representing "payments to the factors of production, which include wages, rents on land and interest/profits on capital" (Juana, 2006:305), and
- c) Household income generation at a farm unit level.

In 1980 Zimbabwe had a skewed distribution of income and land ownership, with eighty and twenty four percent of land resources in the hands of the state and large scale commercial farmers respectively. Hence one of the aims of Zimbabwe's land reform process was to resettle around 162000 families onto 8.3 million hectares of land. The majority of the land resources targeted for resettlements would be bought from large-scale farmers within a market framework of 'the willing buyer-willing

seller'. However, in 1997, almost twenty years after the formulation of the policy, only 71 000 families had been resettled onto 3.6 million hectares signalling the emergence of the well documented economic and political crises facing the reform process in Zimbabwe. In Table 7.6 the slow redistribution is illustrated for various land categories. The table shows that only twenty three percent (in bold) of transfers had been achieved from large-scale commercial farmers.

Table 7.6 Land distribution at and after independence

Land category	1980 (million ha)	1997 (million ha)	Increase/decrease in land (million ha)	Percentage change
Communal areas	16.4	16.4	0.0	0
Resettlement areas	0.0	3.6	3.6	-
Smallholder areas	1.0	1.1	0.1	-
Large scale commercial areas	14.8	11.3	-3.5	23.68
State farms	0.3	0.1	-0.2	66.7
National parks, wild life and urban settlements	6.0	6.0	0.0	0
Total	38.5	38.5	0	0

(Adapted from CSO in Juana, 2006:297)

The most cited reason by government for the failure of the reform process was the non willingness of commercial farmers to sell at prices offered by the state, which farmers claimed were below market prices (Juana, 2006). In essence this is an indication of a breakdown of the 'willing buyer willing seller' market framework, which was adopted to enable the process.

Nonetheless, the paper attempts to identify the economic impacts with regard to the outlined variables from the reform process, given the following assumptions (or hypothetical cases) for a computational experimentation of the SAM:

- a) A case where the resettlement programme was successfully implemented, with 8.3 million hectares transferred from large scale commercial farmers, however, with compensation amounts lower than fair market prices as determined in the model,
- b) An actual case, where only 3.5 million hectares of land (i.e. twenty three percent in Table 7.6) were transferred to smallholders in 1997. It is assumed, however, that this transfer occurred at lower than market prices.

- c) A simulation where cases (a) and (b) were repeated with fair and adequate compensations for commercial farmers, offered by the state as well as outside agencies.

To determine the hypothetical net benefits of the reform process from the four scenarios, the paper employed the SAM multipliers and used the material balance equation⁹¹ from Sadoulet and De Janvry (1995) and Baustista *et al.* (2002) cited in Juana (2006). From the computational results the paper had the following conclusions about the land reform process in Zimbabwe:

- a) *Output* could increase if commercial large-scale farmers were adequately compensated and in cases where they were not fairly compensated output would decrease. In cases where adequate compensation was offered, an overall increase in output was observed. On the other hand, *with or without adequate compensation*, a decrease in output for large-scale farmers was observed against *an increase for small-scale* agriculture. However, in the case where there was adequate compensation an overall net increase was observed,
- b) The *gross value added* showed a *net increase* to varying degrees for *all* the case scenarios. However, without adequate compensation, the labour and capital components showed a net decrease in the value added. These components showed a positive net increase for adequate compensation, whereas *the land component to value added showed a net increase in all case scenarios*.
- c) A *net increase in household incomes* was observed for *all case scenarios*, however, with negative impacts on large-scale farmer's incomes. The conclusion from this simulation was that the land reform process, *in its current and ideal form*, has the potential to improve households' welfare, i.e. the gains outweighed the losses *irrespective* of whether the large scale farmers were adequately compensated or not. The net benefits were only larger in cases with fair compensation.

The computer-simulated results were *mostly positive* for the land reform process, even in its present status where commercial farmers were not compensated for state

⁹¹ $Y^1 = AY^1 + F$, where Y^1 is an $n \times 1$ column vector of total sectoral output, A an $n \times n$ matrix of direct technical coefficients for endogenous factors and F an $n \times 1$ column vector of final demand.

acquired land resources. Hence, in the light of the huge economic challenges facing Zimbabwe, especially beginning from the year 2000 and mostly stemming from its land reform policies, these findings are astonishing. Some of the reported economic challenges in the last seven years show that the Zimbabwean economy has contracted by more than forty percent, the average farm workers' wage has decreased to under US\$ 5.00 per month, inflation has increased by more than 3000 percent, there is zero direct foreign investment, price controls have been imposed on all agricultural products, the unemployment rate has increased to an estimated eighty percent, etc. (CIA, 2007). Hence to have research findings indicating that there are a great number of economically positive impacts associated with the land reform policy process should a huge worry for economic research in general.

Nevertheless, in what appears to be an after thought remark, the research's concluding paragraphs placed the blame and responsibility for the country's economic challenges, squarely on, a) the commercial farmers' unwillingness to sell their most productive land areas to the state, and b) the governments' transfers of acquired land resources to corrupt officials. The conclusions were made without any reference to in-depth investigation of these institutional factors. Moreover, the land reform challenges were not reported as having had the dire economic consequences, which are reported from various quarters.

The study failed to mention or factor in any institutional and/or historical impacts in reaching the results and conclusions. There was no investigation of the political and social factors, which have had a significant bearing on the actual outcomes of Zimbabwe's land reform process and current economic conditions. No investigations were reported about the actual micro-economic and farming activities or institutional practices on the reported twenty three percent of acquired farm land resources. There were no investigations or mention of how other related agricultural policies have affected the land reform process, for example the agricultural trade and marketing policies. Therefore it should not be a surprise that what seem to be a set of absurd conclusions have been reached by the research. The review illustrates and reiterates the validity of arguments put forth by institutional economists (e.g. Coase, 1998) about the potentially meaningless applications of formal tools (without 'the institutional body') in economic research. As argued throughout the thesis and

illustrated in the last two sections; the application of formal tools in economic research should and can only be useful within an institutionally informed foundation. In the case of Zimbabwe's land reform policy investigations, the integrated research framework, which was presented in the present chapter, would have been the most suited and sensible approach.

7.6.2 A review of a study of the productivity effects of farming techniques in the former homeland of Bophuthatswana

A review of a paper entitled "*Quantifying the impact of in-field rainwater harvesting (IRWH) production techniques on household food security for communal farmers in Thaba Nchu, Free State Province*" by Baiphethi *et al.*, (2006), offers additional support and insight into the research methods proposed in the thesis. The paper claimed to contribute technical knowledge by proposing more efficient irrigation techniques to increase the levels of production in subsistence farming conducted in semi arid villages in Thaba Nchu (58 km east of Bloemfontein). Some of the history and institutions of the Thaba Nchu villages are similar to those of the KRV, in the sense that in the 1970s to 1980s they also formed part of a homeland system. In this case it was the former government of Bophuthatswana in the Orange Free State province. Nevertheless, the study's proposed harvesting techniques were said to improve water availability, which then increased production outputs to improve the levels of food security for farming households.

The research approach and methods used in the study were largely scientific. To prove that various forms of IRWH techniques indeed contributed to poverty reduction and improved food security, the study defined and specified a number of variables for investigation. In broad terms the variables explored the required levels of household incomes per year, which would enable an average household to achieve its food security requirements. From the breakdown of household incomes, minimum amounts of land areas, which would be required for the implementation of a particular type of IRWH technique, were defined. The extrapolated conclusions on the contributions of various IRWH techniques to food security in the villages were based on test site observations, which investigated the levels at which crop production output levels increased per implementation of seven different techniques. The increases in crop

production were then linked to estimated household incomes in the villages to reach the conclusions.

The study formally defined the Average Household Adult Equivalent (ADEQ) as follows:

$$ADEQ = (A + 0.5C)^{0.9} \dots\dots\dots(1)$$

Where A and C represented the number of adults and children in the household (Aliber in Baiphethi *et al.*, 2006:284). From the ADEQ, the household's income requirement for a year to secure food security was formally defined as:

$$HHIRy = ADMIR * ADEQ * 12 \dots\dots\dots(2)$$

Where ADMIR was the adult monthly income requirement estimate for rural South Africa (May in Baipheth *et al.*, 2006:284).

Two assumptions were made:

- a) The total amount of household's yearly incomes in the villages, came from various sources like, crop and livestock sales, wage income from non-farming activities, remittances and social grants, and
- b) The minimum area of land, which would be required for the IRWH, would equal the difference between HHIRy and incomes from other sources (HIos) divided by the average per hectare income from production of a typical crop mix in these villages.

Meaning that:

$$Wm = (HHIRy - HIos) / FICm \dots\dots\dots(3)$$

Where

- Wm: Minimum area of land required
- HHIRy: Household income required per year
- HIos: Household income from other sources

Flcm: Net farm income from typical crop mix⁹²

From a 2001 demographic survey the villages' average household sizes and incomes from other sources were estimated and these are presented in Table 7.7.

Table 7.7 Socio economic characteristics of an average household in the study area, 2001

Household characteristics	Average values
Household size	5
Adults	2
Children	3
Adult equivalent	3
Income sources	In Rands
Adult income requirement (per month)	353
Household income requirement (per year)	12 539
Social grants (per month)	328
Remittances (per month)	236
Total off farm income (per year)	6 767

(Source: Baiphethi *et al.*, 2006:287)

The study also assumed that to afford and/or achieve the required levels of nutrition, estimated at 2500 kilocalories per day per adult (Hoddinott in Baiphethi *et al.*, 2006), an average income of R12 539 per year had to be obtained by an average household. The assumptions enabled researchers to estimate areas of land that would be required, firstly for farming using conventional methods, and subsequently for farming using the various IRWH techniques, which are illustrated in Table 7.8. The land areas would be determined by the differences between incomes from others sources (off farm) against incomes required from farming activities in order to achieve the average HHIRy levels and the required kilocalories per day per adult.

⁹² A crop mix of maize (40%), sunflower (30%) and dry beans (30%) was assumed in the test.

Table 7.8 Minimum area of land required to ensure food security for an average household in the study area for different production

Type of techniques ⁹³	Minimum area based on income (HHIRy) requirement (ha)	Minimum area based on caloric (nutrition) requirement (ha)
1. Conventional farming	11.49	8.45
2. BbBr	5.18	3.02
3. ObBr	4.87	2.84
4. ObOr	3.64	2.12
5. SbOr	3.51	2.05
6. SbSr	3.37	1.97
7. ObSr	3.21	1.87

(Source: Baiphethi *et al.*, 2006:289)

From Table 7.8 the introduction of the each type of IRWH technique reduces the required size of land for farming to achieve the required levels of HHIRy and nutrition per household. The effects from more efficient techniques are progressively greater relative those less efficient, for example in terms of both HHIRy and nutrition the ObSr technique (7) is by more efficient than the BbBr technique (1). The discrepancy in terms of required land areas to achieve the income (HHIRy) versus caloric (nutrition) requirements, however, could not be easily explained by the study. Nonetheless, the research concluded that:

- a) The IRWH techniques remarkably reduced the amounts of land requirement for cultivation by average households to meet their food requirements,
- b) Where other sources of incomes were available to households, the caloric estimates were relevant, and
- c) The impact of social grants and remittances on land requirements were also important because these sources contributed more than fifty percent to total household incomes (refer to Table 7.7). Hence their removal would mean that more land resources would be required for cultivation to meet adequate levels of food security, however land resources may be scarce.

⁹³ BbBr is mulch bare basins and bare runoff area, ObBr is organic mulch in the basins and bare runoff area, ObOr is organic mulch in the basins and organic mulch in the runoff area, SbOr is stone mulch in the basin and organic mulch in the runoff area, SbSr is stone mulch in the basins and runoff area, and ObSr is organic mulch in the basins and stone mulch in the runoff area.

On the surface, the conclusions appear quite reasonable based on the methods adopted in the study. However, a number of criticisms need to be discussed. Throughout the study, the research methods were confined at an experimental level. The confinement would prove problematic if the results and conclusions were to inform public policy implementation purposes. The assumptions made with regard to the general crop production mixes in the villages, which are forty percent maize, thirty percent sunflower, and beans, without actually conducting research to determine the mixes may prove to be a source of serious inaccuracies in the estimated values presented in Table 7.7 and 7.8 and the conclusions that were reached. The fact that the study was unable to explain the discrepancies between land requirement estimates for incomes (HHIRy) versus calories (nutrition), with respect to Table 7.8 results, should be worrying in terms of the applicability of results. In fact the discrepancies may have flown from a number of inaccurate assumptions, which were made by researchers from the various conclusions from secondary studies cited throughout the research, for example the poverty line estimates (May in Baiphethi *et al.*, 2006) and daily caloric requirements values for adults (Hoddinott in Baiphethi *et al.*, 2006).

In her critical discussion of the misapplication of formal and statistical methods in economics, McCloskey (1985) quipped that if economists were *so smart how come they were not as equally rich?* The point, like Coase's (1998) criticism of economics as having become a study of a blood circulation without the body, is aimed at illustrating the dangers of conducting experimental research that offers little insight into the actual economy. Experimental tests "show that certain equations describing a certain blackboard economy (or problem) have a solution, but they do not give the solution to the...extent economy" (McCloskey's, 1990b:12). There is no evidence of research conducted in the study illustrating that the conclusions reached in the test experiments were readily applicable to the Thaba Nchu villages for which the study was formulated in the first place. No evidence is provided signalling that an understanding of the farming history and institutional factors that govern the activity was sought before and/or after the research was conducted to ground the mathematical results. Hence, whether or not the techniques, for whose efficiency improvements were so eloquently argued, would be understood even prior to being implemented by the villagers remains an unanswered serious question for the study and policy makers. It is not known whether the 'experimental' techniques would in fact complement or

be in conflict with the dominant farming practices in the Thaba Nchu villages. Answers to these questions would be crucial if the results were to be adopted for policy considerations, which often require high public budgets. In the end, due to the non-researched political and institutional factors, the attempts at implementing the techniques proposed by the study may prove to be more costly than efficient.

The primary argument presented here, however, should be interpreted as implying that the study results could not be useful to policy by any means. Since the study has already been conducted, a supporting follow up study could be conducted to investigate the real life application of the advocated techniques in selected villages. The process would not only determine whether a broad public policy adoption of the techniques presented by Baiphethi *et al.* (2006) would be necessary in achieving food security, but it would also determine or map out (admittedly as an after effect) an institutional framework ripe for the adoption of similar techniques in well understood social contexts. The research possibility further illustrates the circularity of the research method framework, which has been proposed in the thesis and illustrated in Figure 7.3.

7.7 THE IMPLICATIONS FOR DEBATES ON METHODS

From the discussion and analysis of the KRV institutions as well as the presentation of an integrated research framework in this chapter it is clear that the thesis has embraced the ‘new’ institutionalism over the ‘old’. In line with arguments made by North (1992:3) that “in contrast to the many earlier attempts to overturn or replace neoclassical theory (for example Veblen, 1904) the new institutional economics builds on, modifies and extends (the) theory to permit it to come to grips and deal with an entire range of issues heretofore beyond its ken”. The proposed framework for economic research does *not* discard the importance and usefulness of some of the philosophical underpinnings of the new classical economics with its formal models. It ameliorates their position instead. Most institutionalists have correctly argued that it is the misuse of formal or mathematical methods, for example the specification of regression models and axiom and proofs in economic social systems that have led to methodological discrepancies and exclusion of the discipline of economics from the social science inquiry (Evensky, 2004:197-211 and McCloskey, 1990b:1127-1130).

The institutionalist contention, however, does *not* mean that sensible formalisations of substantive economic thoughts or arguments should be replaced by non-rigorous methods, which is incorrectly argued by Weintraub (2006).

What has been the challenge to institutional and to new classical economic thought is finding a unifying theory. Such a challenge was explicitly admitted by Williamson (2000:595) when he confessed that economists in general have remained ignorant about institutions. He also remarked that even though the past quarter century had witnessed enormous progress in the study of institutions, the sub-discipline, however, still awaited a unified theoretical framework acknowledging of pluralism, where such a theory would contribute to economics' reintegration to social science. As a contribution to the search for this theory, the thesis has presented a unifying methodological framework for economic research, which in a primarily linear manner specifies the relative positions and contributions of institutional as well as formal methods to dynamic and holistic research endeavours. Admittedly, the framework has deliberately afforded a foundational importance to institutional work. However, the position and importance of axiomatisation in economic arguments have been clearly identified and as a result their value in social and political discourse has been much enhanced.

The implications of the framework regarding economic research methodology are straightforward. Most of the reviewed debates pertaining to methods especially between the 'new' institutional and classical economic writers are of a serious nature. It is true that the neglect of and ignorance about institutions in some economic research activities, for example those reviewed in the last section, have contributed to methodological murkiness and discrepancies in mainstream economics. The results from such research have often led to socially costly public policy actions. However, the costs have not risen because of the non-importance of the use of formal tools. What is evident is that some economic studies do not intelligently use formal tools within an understanding of the most appropriate institutional factors. Therefore, what has been a recurring and primary conclusion from this research is that there cannot be any significant economic research that could intelligently claim to have a meaningful social contribution, especially towards improving development prospects, without a strong institutional foundation. Hence, the integrated framework presented earlier in

the chapter encourages an avoidance of methodological discrepancies and consequent policy errors that may arise from research that is ignorant about the roles of institutions. In the following chapter a summary of the main policy implications at a national and local levels from the discussions and analyses of preceding chapters are carefully outlined.

CHAPTER EIGHT – SUMMARY AND RECOMMENDATIONS TO POLICY AND RESEARCH

8.1 INTRODUCTION

In the opening chapter it was discussed that since the early 1970s many African countries have experienced chronic levels of poverty and that the explanations given for the food crises are varied and present a complex web of factors. Numerous public policy attempts in the form of agricultural projects aimed at curbing the food crises, in both Africa and other developing countries, have also been marred with repeated policy failures (Eicher, 1999:10-11). With regard to economic research activities and subsequent policy formulation, which are aimed at alleviating the high levels of poverty, the thesis argued and demonstrated that a lack of adequate investigations into institutional factors has immensely contributed to some of the failures in searches of the right solutions. The history of South Africa's agricultural sector and policies together with case studies from the Kat River Valley (KRV) in the Eastern Cape were used in presenting evidence to support that argument. In addition, the thesis developed a framework to conduct economic research, which enables an integration of institutional investigations to be used as an appropriate foundation upon which formalised research questions could be based. This chapter presents the most pertinent implications of the research work to public policy formulation processes at national and local levels, and concludes by reiterating the primary thesis argument with its implication for future research in the sector.

In section two, the research implications for national policy with regard to the marketing of agricultural products, the management of land and water resources are presented. A selected set of policy implications for the KRV are discussed in section three with specific reference made to the insecurity of land tenure and other significant institutional findings, which were presented in chapters six and seven. Section four presents the research implications and recommendations for future research in general as well as for the KRV social system in particular. Section five summarises the main thesis argument with a concluding note.

8.2 SOME IMPLICATIONS FOR POLICY AT A NATIONAL LEVEL

The marketing of agricultural products

In chapter five it was argued that South Africa's biggest challenge in an attempt to eradicate poverty and inequalities depends on the growth and improvement of the agricultural sector, because the majority of the poor still live in rural and undeveloped areas, especially of the former homelands. Three pieces of national legislation, which were identified as being key in government's efforts to overcome the challenges of poverty and inequalities in the agricultural sector, were the Restitution of Land Rights Act (22 of 1994), the Marketing of Agricultural Products Act (47 of 1996) and the National Water Act (NWA, 36 of 1998). Among other objectives, the Acts are focused at improving the efficient and equitable use of the most important agricultural resources. Throughout the thesis it was demonstrated that because of South Africa's history of institutionalised racial discrimination, the current regime of national legislation has to cope with huge backlogs in the redress of historical effects (refer to Table 5.3 in chapter five).

It was discussed that the current legislation has had mixed levels of success and some serious failures. Even though the Marketing of Agricultural Products Act (47 of 1996) has led to a drop of many tariff and price controls as well as growth of agricultural export markets, the majority of the benefits have accrued to farmers who already had market access. The exclusion of 'outsiders', who in many cases were subsistence and emerging farmers, has intensified (Vink and Kirsten, 2002). It was argued that the unintended exclusions have been the result of oversight and ignorance about the deep effects of past institutional factors in current policy formulation processes. The new policies have not paid adequate attention to the strong and resilient negative effects from the old marketing institutions and the powers that they still bestow on groups that were historically favoured and benefited. At a micro level, the KRV cases demonstrated how the old marketing institutions were still robust and also promulgated the underdevelopment status of the excluded groups, such as subsistence farmers in the upper KRV. In fact 'the lack of marketing plans and skills' within the

group ranked highly on the list of dominant institutions, which contributed high costs to development efforts (refer to Table 7.5).

As argued by a number of local economists (e.g. Vink and Kirsten, 2002, Magingxa, 2004) effective public policies with the sole aim of not only opening up market access opportunities to subsistence and emerging farmers, but of creating these markets and of assisting farmers in utilising them should receive agent attention. Again in the KRV's case of subsistence farmers it was reported that the withdrawal of extension officers, who were once effective in the marketing of agricultural products in the mid 1990s, negatively affected the farmers' efforts in recent years. Part of the reasons for these developments had to do with a lack of localised pool of skills. Hence, while direct support was being offered to emerging farmers, a large portion of the policy effort should also be directed at imparting the right set of skills. This would ensure that if at some point the state were to withdraw its direct support, say for economic efficiency considerations, the farmers would still remain self-reliant. The latter argument entails an establishment of economic incentives to ensure that paternalistic relationships and a culture of dependency on the state (or other external) agencies be avoided. Based on the discussions of the importance of local institutions, which were discussed in preceding chapters, the incentive structures should not be of a generic kind across the country if they were to work. However, context specific studies aimed at investigating a history of pervasive institutions should inform an identification or formulation of a practical set of incentive structures that would work sustainably. The discussion in section 8.3 of local policy implications for the KRV context further illustrates the point.

The management of land resources

The thesis demonstrated that the Restitution of Land Rights Act (22 of 1994) together with other related land legislation; have been faced with probably the biggest challenges and the worst failures in the last ten to thirteen years. For example, the historical negative effects of insecurity of tenure in the development status of communities and individuals (e.g. in the KRV) were discussed and quantified in terms of average income earnings and acquisition of formal education. The land market framework of 'willing buyers and sellers' is currently imbued with legal difficulties. It

was reported in chapter five that in recent years a number of court cases between commercial farmers and government agencies have increased (Independent Papers, 2006). Conflicting claims within the land restitution process have stalled some of the crucial agricultural projects in various areas including the KRV (e.g. DWAF, 2005b). The developments have resulted in vast amounts of land resources earmarked for restitution and redistribution process becoming under-utilised. At the core of some of the conflicts, are the tensions and confusions regarding the choices of appropriate property rights regime to implement in the post homeland era. While communal access and use of land resources are still widespread and seemingly more culturally acceptable, especially in traditional contexts, the government's land policies (DLA, 2002) have embraced private land ownership as the vehicle to more economic efficient use of the resources. While the common access regime has entrenched the institutions of land insecurity as probably the biggest hurdle to overcome to achieve economic development, the rural communities, based on strong cultural values, still prefer this regime. Hence, government policies have not found innovative ways to negotiate the common versus private ownership tensions. Following the discussion by Hirschman (1960), it is clear that in the KRV's rural communities, common access and use form the right 'images of society', which means that public policy attempting to impose other 'images', which are not as acceptable, would only exacerbate local conflicts. Therefore, any ambitious government policy drives aimed at promoting private ownership of land resources at the expense of deeply rooted cultural values have to be abandoned, at least for the time being. The policy formulation process should aim to strike a delicate but sustainable balance in fostering private and/or common ownership rights. The policies should be aimed at achieving economic efficiency alongside community solidarity for sustainability. How the balance is struck would have to be context specific. An in-depth knowledge of local institutions, which promote the values of community solidarity, has to be acquired. Thereafter the institutions would inform the formulation of appropriate policies, with the right incentives. For example, the formation of culturally representative community forums to oversee, regulate and govern the use of and access to common resources within a business framework would be a sensible policy attempt. To be sustainable, the organisational structures of these forums would have to be founded on a mix of principles that promote significant local cultural values alongside effective business practices.

In any case, the experiences of the last ten years in the water policy sector have shown that government attempts at establishing community based management forums are very difficult processes. In this sector, the establishment of Catchment Management Agencies (CMAs) (which are community forums) has presented great challenges (Motteux, 2002; Lotz-Sisitka and Burt, 2006, etc.). Nevertheless, if the forums were successfully established, the lessons from the process would benefit attempts at establishing local forums for land management. The land policy programmes would not have to reinvent the whole wheel in formulating such structures. In fact it could also be further argued that perhaps in attempts to capture benefits from economies of scale, the best option may be to establish forums that would be responsible for the management of both land and water resources. If the approach were adopted, the implication for the DWAF and DLA would be to establish stronger working relations. At the moment, however, the two departments as illustrated by the case of black citrus farmers in the KRV, do not have such an effective working relationship.

The management of water resources

In chapter five it was discussed that the process to implement the National Water Act (36 of 1998) has been slow and difficult. The process to establish local water management forums (CMAs) has mostly struggled with trying to achieve the participation of local stakeholders (Motteux, 2002; Mbatha, 2005; Lotz-Sisitka and Burt, 2006). While in theory the national water policy has sound political and economic objectives, with attempts to find a balance between equity and efficiency outcomes, the DWAF's (2004) implementation strategies have not been as effective. In the preceding chapter (refer to Table 7.5), the national water policies were identified as having some of the highest potential benefits for the process of economic development in the KRV. Such was the case partly because the policies were formulated with an aim to replace the old and inefficient but still dominant policies of the past (e.g. the riparian water rights from the 1950s). Moreover the new policies are founded on sound economic grounds of creating water markets through the use tradable water licences (NWA, 1998). However, once again the challenge of overcoming the exclusions of previously discriminated groups in the water sector has arisen. Often the exclusions stem from various historical factors and current

institutions, which determine the distributions of skills and resources. For instance the equitable participatory management to be achieved, stakeholders need to be equally empowered in terms of resources and human skills. From the discussions in chapter five and seven it was concluded that the empowerment objectives are far from being achieved. Since true empowerment cannot be achieved overnight, it is clear that the process would take time to unfold and DWAF cannot be ignorant about that fact.

At a national level, the conflicts between commercial farmers, government agencies and environmentalists have contributed negatively to the implementation process. Issues of water distributions and quality have been at the core of most of the conflicts. The commercial farmers' fear of losing water allocations because of redistributions and environmental concerns have led to non-cooperative attitudes on the part of farmers (DWAF, 2005). This has imposed difficulties to government agencies primarily because commercial farmers still hold a lot of commercial power and have the best technical skills, which they use as leverage at bargaining processes. Hence, it would be short-sighted for national policy not to figure strategies to allay the fears or in cases where they are real to compensate losers to ensure a smoother and cooperative implementation process takes place.

Regarding emerging farmers' lack of empowerment and their subsequent low levels of participation in policy implementation processes, it could be argued that even if all water users were equally resourced, it still could not be assumed that a generic structure of CMAs could be established across the country. As argued in the proposed case of land management forums, the given communities have to understand the nature and functioning of these agencies to those that enhance their own cultural values before they could be adopted effectively. Undoubtedly, a true understanding of how in various contexts the newly established CMAs could compliment the local norms and values could only be achieved through institutional research. The same argument was proposed in the reviewed case of Thaba Nchu in chapter seven. Moreover, as much as an understanding of the institutions that govern the activities of marginalised stakeholders' matters to policy-making, the formal practices and attitudes of commercial farmers are as important to that understanding. In the KRV cases, it was fortunate that the attitudes of commercial farmers were not as much in conflict with the new water policies. However the situation is not the same in other

water catchments, which means that context specific approaches are crucial. Some of the KRV commercial farmers were actively figuring out ways in which to use the new policies to their own future benefits, and hence their participation and attitudes were often useful to the process of establishing forums. These are the types of institutional mindsets that the implementation process needs to discover for each area where CMAs are proposed. The work would require that adequate institutional research be conducted beforehand.

8.3 IMPLICATIONS FOR POLICY AT A KAT RIVER VALLEY LEVEL

The discussion and analysis of case studies from the KRV, in the preceding chapter (refer to summaries in Table 7.5 and Figure 7.2), indicated that the most important institutions currently dominating the activities of various groups of farmers could be divided into two historical waves or categories. A group of self-reinforcing institutions, whose prominence was supported by the old regime of policies prior to 1994, was the 'old' wave and the current set (post-1994) of informal and formal institutions formed the new wave. Most of the institutions in the latter category have been initiated by the present government. The current institutions, in the form of public policies, have been instigated as reactionary measures to counter the inefficiency and inequality effects of the old wave, which evidently still highly dominate the local practices. Essentially what this means is that: just because a new set of policies have been enacted into pieces of legislation that does not necessarily mean that the effects of the 'old' policies with their deeply entrenched practices have disappeared at a local level, even though they may be on a decline as illustrated in Figure 7.2. On the other hand, the contributions of institutions to the process of economic development were found to be both negative and positive within the two sets of historical waves. In addition, a number of institutions were found to have had effects across all three case studies⁹⁴, while some had effects that were only confined to particular cases. For example, the negative effects of insecurity of tenure were pervasive in all three social systems that were investigated in the KRV, while authoritarian leadership practices were only identified in the case of subsistence farmers. Therefore, such observations would entail that classification by (a) 'history',

⁹⁴ More than six of the identified twenty one (above fifty percent) affected all three systems

(b) ‘contribution to development’ and (c) ‘prevalence across the three systems’ would form a sensible framework for presenting policy recommendations for the institutional factors identified in Table 7.5.

8.3.1 Selected recommendations by history, contribution and prevalence

It was made clear that the Department of Land Affairs (DLA) had an important and urgent role to play in implementing the land reform process in the KRV. For instance, it was illustrated that the acquisition of properly defined rights to land had the potential to increase the average incomes and formal education levels of heads of households in the area. The process of allocating water rights to users in an equitable manner could not be successful if land claims were not resolved. Any efforts directed at enhancing market access to excluded groups could not be complete without an understanding of current and potential farming activities, because these would impinge on the final outcomes of the land reform process. The process insofar as it was affected by restitution claims was a legal operation, while its redistribution aspect was more economic and technical in nature. Hence, the DLA’s redistribution of land, which it was argued aims to achieve an economically efficient use and access to the resources, was part of the reform process that should carefully negotiate the tensions between private versus common access and use rights. It was demonstrated that a lack of private land ownership has negatively affected the economic development indicators in the villages, however, the acceptableness and dominance of common access and still use remained a strong cultural institution that could not be wished away in the KRV. In the preceding section it was proposed that the establishment of land management forums would form a logical compromise between these conflicting values. The same principle would also apply to upper KRV. If the forums were to be established a practical balance would be struck between the effectiveness and acceptableness of private versus common property rights regimes. However, the formation of such a forum in the KRV would require time investments in a thorough consultative process. Moreover, the composition of socially acceptable representative structures in the forum would need to be investigated for equity and cultural considerations as well as economic efficiency. In any case, it seems logical that the forums should be prioritized for establishment to manage land resources in instances

where heightened community tensions already exist regarding the DLA's imposition of private ownership rights for redistributive purposes.

The countrywide implementation process of the National Water Act (NWA, 36 of 1998) was underway during the time of research, with potential benefits for a) proposals made to the land reform process in the preceding chapter, and b) economic efficiency in water management in areas like the KRV. There were however other problems, which were identified in the KRV regarding the process. The KRV catchment management group (composed of scientific and social researchers as well as the members of the Water Users' Association (WUA) and Catchment Forum (CF)) was in the process of determining the ecological and social reserves of the basin. Unfortunately since the process started there had not been any involvement of the DLA. Hence, the group could not determine how much land had the potential to be developed in the upper KRV in order to accurately determining the reserves (Burt, 2007). Ultimately the DWAF and WRC research efforts conducted without consultation with the DLA would undoubtedly prove to have been wasteful in the long term. Hence it is recommended that provincial government departments the DWAF, DLA, DoA and the local municipality form a working or steering group to coordinate the KRV research and policy implementation efforts. The formation of the group would reduce a number of identified information asymmetries in the KRV and their associated transactional costs.

Coordination failure in the implementation of provincial government policies, which were formulated for purposes of developing emerging was another big challenge discussed in the case of black citrus farmers in chapter six and seven. The discussions illustrated how various provincial policies did not fully complement the local initiated development ideas and efforts. The primary reason for this was that the policies did not account for local institutional factors. The DWAF, DoA and DLA had funding programmes, with mathematical formulae in place for a 'fair' distribution of resources to emerging farmers. However, the funds were not being accessed or used by targeted groups. The discussions showed that in many instances the farmers did not have the information about the availability of these funds. In some cases the conditions to be met and requirements from projects to access the funds did not match local situations and needs. In other cases the policies formulated at the municipal level were in

conflict with objectives of some provincial departments, for example those of the DLA with regard to land rights access. To avoid the under-spending of policy funds the formulation process should only take place with informational feedbacks firmly established with local communities. The ‘top down’ approach, which often yields non-useful policies, has to be replaced with bottom up approaches. Ultimately more intensively consultative approaches to policy formulation processes need to be adopted. The communication channels between the various provincial departments (e.g. the DWAF, DLA and DoA) and local municipalities need to be improved to avoid conflicting objectives.

The foregoing summaries and recommendations have not exhausted the list of institutional factors presented in chapter six and seven. However, a clear recurring theme is that more research with a strong institutional orientation needs to be conducted when implementing new policy ideas. The adoption of generically formulated policies by local agencies is inefficient as it provides little meaning for communities. A development of a deep understanding of institutional factors, similar or better than the one summarised in chapter seven for the KRV is recommended for public policy processes.

8.4 RECOMMENDATIONS FOR FUTURE RESEARCH

Throughout the thesis, the main proposal to mainstream economic research was that an understanding of institutions and their effects on transactional costs is foundational in attempts to achieve development. Hence, researchers have to find more effective ways in which they could integrate institutional and new classical economics for meaningful results. The integrated research framework, which was presented in chapter seven, could only be improved upon its wide applications. The framework was developed and discussed for agricultural economic research and its application in other sub-disciplines of economics (for example in labour economics) could only provide further insights into the institutional versus new classical economics debates.

At a KRV level, the tabulated lists of dominant institutional factors, with significant contributions to transactional costs could not be exhausted in the presentation of policy recommendations in the present chapter. However, what the lists indicated are

the vast research opportunities and topics that need further investigations, especially by using formal tools like the Cost Benefit Analysis and others. The estimations of costs and benefits using quantitative methods would especially support budgetary decisions regarding public policy interventions.

The land reform process was identified as one of the most important topic for current and future research in the agricultural sector. For instance, future research could investigate the potential benefits that could be had from establishing land management forums in support of South Africa's reform programmes.

A tabulated summary of the most crucial recommendations to research and policy from the study is presented in Table 8.1. Some of these recommendations were presented in chapter seven.

Table 8.1 Summary of pertinent policy and research recommendations

Level of policy/research relevance	Institutional challenge	Recommended actions and/or agents
National, marketing	Exclusion of emerging farmers from access	Create markets and assist farmers in utilisation by fostering skills
National, land management	Adoption/imposition of in/appropriate ownership rights system	Establish community forums which integrate common and private ownership management values based on institutional research
National, land management	Proposed forums that integrate common/private rights	Source useful lessons from current National Water Policy (NWP, 1997) implementation process
National, water management	Conflicts of interests between commercial farmers versus public and environmentalist needs	Discover the right contextual incentives for commercial farmers to support new policy
National, water management	Difficulties with CMA establishment	Discover the rights norms, values and incentive per location to complement the new CMA organisation and operations
KRV, emerging farmers	Costly informal institutions	Encourage compliance with collectively formulated written rules by exposing and expanding the social & economic benefits
KRV, agricultural resource management	Provincial policy coordination failures and conflict of policy objectives	a. Create steering group comprised of DWAF, DLA, DoA and municipality and local stakeholders b. Funding policies must employ 'bottom up' approach
General economic research	Lack of universal theoretical methods for integrated research methods	Adoption and improvement of proposed integrated framework
National research priority	The land reform process and land tenure challenges	Research dedicated to finding costs and benefits to establishment of community forums
KRV socio-economic research	Institutionally informed formal research	Formal research questions need to be investigated from present institutional summarised findings

8.5 CONCLUDING NOTE AND THE WAY FORWARD

The primary theoretical argument of this work was that most contemporary economic thought lacks a methodological and paradigmatic integration of institutional and new classical economic perspectives. The lack of integration has resulted in a generally skewed selection of methods and tools employed in mainstream economic research without an adequate foundation supported by an in-depth understanding of institutional factors. Hence, a balance had to be found in selecting appropriate institutional methods and formal tools when conducting research that has socially meaningful results, especially in developing country contexts. A framework for economic research, which amplified the importance of institutional research in the design of formal research questions was developed and presented. With this integrated

framework, the research demonstrated that the perception that there exists two extremely opposed views from the institutional and new classical economic schools of thought pertaining to what may be considered to be the most appropriate research tools and methods for economic research is actually misplaced. In the proposed framework these schools of thought are highly complementary.

A contextualised application of the integrated research framework in the KRV was useful in identifying the most significant institutions in terms of their transactional costs and benefits to the development process and policy issues in irrigated agriculture. A selected number of recommendations to policy aimed at eliminating especially costly institutions and at improving opportunities for the economic development for the whole KRV system were presented. Recommendations were also discussed for potential future research based on the institutional and theoretical economic research findings.

In addition, the thesis concluded that future research designs should adopt similar integrated approaches to benefit a deeper understanding of how various socio-economic methods may contribute towards growth in economic knowledge. The approaches would also improve an understanding of how various frames of thought are interfaced with one another at a theoretical level.

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10. APPENDICES

Appendix 1

Guideline questions for recorded interviews with KRV (commercial) citrus farmers:
September 2005

Name		Name and Location of farm	
Position	Manager	Lessee	Date
Owner			
group			
Phone & cell			Address

Section A1. Current status of the farmer:

Land availability

How much land (ha)

- i) Total land owned and/or leased).
- ii) Citrus under irrigation
- iii) Not under irrigation
- iv) Possible for development

A2. Water access and availability

- i) What type of access/rights (Un/scheduled) scheduled
- ii) Water cost. Per ha.
Per volume
- iii) Is this sufficient for current needs
- iv) Quality problems
- Problem solving
- v) Availability
- vi) Quality

comments

A3. Irrigation systems (including water storage)

Weirs

1. River name and height of wall

Water obtained from Kat river by pump due to scheduling on Blinkwater plots but also from boreholes, fountain and Blinkwater river.

2. How many pumps
3. Size an number reservoirs
4. Size and number storage tanks
5. How much water is stored today
6. Number of boreholes
7. How much water per month
8. Rain water (precise contribution to water availability as a whole-this past year)
9. Type of irrigation used Drip Micro-jet
10. Admixes into water Pesticides Fertilizer Y

Section B. History of the individual farmer (or family if applicable):

- a) How long has farmer been in the system?
- b) NB When and why was land (farm/s) bought (if known)?
- c). Why was Dam built? And who contributed financially?
- d). What contributed to current **scheduling** position AND water availability?
- e) **NB**. How were the rules for operating the dam laid out: by whom and when?
NB
- f) How fair (in respondent's opinion) have the rules been in the past and now?
If the rules have changed what contributed to the change?

If the degree of fairness has changed what has led to the change?

Comments

Section C. Business prospects of the Farmer as seen by the farmer

1. What is the total production output?
Ask Riverside
2. What is the current production demand?

3. **NB** Any future investment plans?
4. **NB** Any future land development plans for irrigation
5. Any current and proposed business partnerships?
6. Does respondent have any fears of land invasions (explain)?
7. Agri-BEE policies. Have you looked at the legislation? What do you think
8. What are the implications for citrus?
9. Any plans for acquiring more water from future water allocation system? (explain)

Section D Challenges faced with in the following areas

1. Water availability (explain)
2. Business constraints (explain)
3. Institutional constraints (**Important subsection give priority**):

a) What is the respondents' understanding of the NWA (1997) licensing procedures?

.....
 b) Is the currently formulated Catchment Management Plan (Rhodes facilitated water/social yield study) going in the right direction in the opinion of the respondents?
 c) What are the reservations about the process?

d) How effective is the WUA in the system?
 e). What is its capacity as judged against the constitutional mandate? (Can it do what it must do?)

- e) What is DWAF involvement in the Kat system?
- f) Does the member know and/or understand the vision of DWAF?
- g) In the respondent's opinion has things gotten simpler or more complicated in the last five years-explain)
- h) What has the role of Rhodes University been in the system as a whole in the respondent's opinion?
- j) What are the marketing (Katco/Riverside/Other) difficulties?

Section E. Topical issues (Important section-give priority)

1. What should happen to the non-paying Upper Kat farmers (including the farms) in the respondent's opinion?
2. What should happen to water scheduling in the future?
3. Who should pay for Upper Kat training (e.g. WUA?, DWAF, Rhodes, individuals)?
4. Who should pay the Upper Kat arrears?

5. Why has the dam limit been set at 60% for non-scheduled farm flushes?

6. Are there adequate quantities of water outside the Kat River system in the respondent's opinion? (from where)

Section F

1 Comments from respondent not asked:

.....
.....
.....

2 Interviewer- comments on observations- may not be done in front of respondent)

.....
.....
.....

Appendix 2

Guide questions for emerging farmers (new and old irrigation schemes):

1. History of the scheme

History of the area and present occupants
Where is the scheme?
What is being produced? And why?
How big land and personnel?
Whose initiative it was to get it started?
How did they do things previously?
What problems they were faced with?
How they overcame them? Who were involved?
Are members dependent on the scheme for livelihoods?

2. The old and new vision of the scheme

Business-wise
Does the scheme make enough money?
Does the scheme aim to grow big? What Future crops do they want to plant? And how do they think they will get there? With whose support?

3. Resources

Land (how many hectares how far from the river)
Water (Is there available irrigation equipment? Provided and maintained by whom?)
Water irrigation arrangements (when is the land irrigated and why? Who makes the decisions?)

4. The institutional issues

Who is supporting the scheme at present?
For business (inputs, capital, etc)
Skills support (e.g. when to irrigate)
Level of education of members and status on the land (e.g. the head of a homestead or household) Does s/he have another job or income from pension?
What is the members' involvement in their communities?

5. Access to institutions

Agricultural education (e.g. do they attend Mpofu training courses? Or other)
For business (e.g. marketing ventures)
Is there a written constitution or business plan? Who was involved in drawing it up? Is it understood by members? Are they happy with it?
Do they want to work with other commercial farmers?

6. Conflict resolutions:

How do farmers resolve disputes?
What does the constitution (if present) say or other agreed upon rules?

Do they follow these rules?

Land restitutions issues and land tenure

Are members or the schemes entitled to the land or is it borrowed from the state (please ask for proof and write down what the doc says)

Are people fighting for land rights or are there land restitution conflicts? (e.g. between blacks and coloureds)

Section B

Additional information to be collected

GUIDELINES TO BE FOLLOWED:

Make sure notes are written on the following points: in the Black book for each scheme.

Make sure that all these topics or Areas (over and above the ones already mentioned) are covered in the interviews with the scheme members:

- 1. Level of literacy of members**
- 2. Irrigation farming experience**
- 3. Irrigation farming training**
- 4. Note attitude of farmer towards the scheme**
- 5. Geographic location**
- 6. Suitability of climate for the crop planted (if not sure mention the crop and put question mark)**
- 7. Size of operation: hectares planted, output per cycle and price of units (e.g. 20 hectares for 1000 bags of cabbages per cycle at R20 each bag)
Also, describe the cycle (is it year or six months, etc)**
- 8. Land ownership**
- 9. degree of dependency- on farm income (is there another source of income (e.g. pension) available to each member?)**
- 10. Amount of irrigation water available**
- 11. Reliability of water supply system**
- 12. Quality of irrigation water (is it clean or dirty) Are there leakages in pipes or oil leaks into the water from equipment?**
- 13. Degree of responsibility of the farmer for the supply of water to the land (is it piped and pumped for the whole area or each member irrigates separately?
What are the rules applicable here?)**
- 14. Management of water (rate this do you think it's v.good good or bad or v. bad and write why you think so.**
- 15. Is the distribution of water on the land good?**
- 16. Is the irrigation equipment suitable for the type of crops or for some and not for all (write notes on this point)**
- 17. Are fertilisers applied at all and if so is it correctly**
- 18. Who installed the irrigation equipment**
- 19. Is the scheme with its equipment looked after properly? Have there been cases of theft or vandalism? How frequent (do they occur all the time?)**
- 20. Is this scheme better than other schemes? Mention those you are doing the comparison with. And mention in what aspect are they worse or better**
- 21. Ways of resolving problems**

22. Irrigation scheduling practices (What are they?)
23. Crop management (how are the crops looked after?)
24. Labour requirements (How many people are required over how big a land and for what crop)
 - from preparing land
 - to planting
 - to maintenance
 - to harvesting
25. Record keeping (of stock and of finances, etc.)
26. Physical infrastructure availability
27. Extension service from Dept of Agriculture (do the officials come to offer help of any kind)
28. Social standing of each farmer (are farmers respected in the community?)
29. Cost of running the whole system
 - break it down to a) cost of inputs: seeds, water, labour b) maintaining of infrastructure c) running costs (e.g. electricity, renting of shed, transport etc.) per month - d) marketing of goods per harvest cycle.
30. Cost of water supply
31. Scale of production: e.g. fifty tons of cotton per cycle of harvest
32. Access to and use of finance and credit support (can farmers borrow money from bank or other place and do they do this?)
33. How is the marketing done?

Appendix 3

The constitution of Hacop

1. Name of the project

The project will be called Hertzog Agricultural Co-operative, with understanding that it includes the following areas, which form part of this zone: Herzog, Fairbain, Phillipton.

2. Structure

- 2.1. The project will be owned by individual plot holders
- 2.2. The plot holders will appoint a committee consisting of two representatives of each of the three communities as in 1.1., which will serve for one year.
- 2.3. Hacop will be affiliated to the Hertzog Reconstruction and Development Program (Hertzog R.D.P.)
- 2.4. Hertzog R.D.P. will on its turn be affiliated to Mpofu R.D.P.

3. Status

Hacop will be an Agricultural Community Project

4. Aims

Hacop will:

- 4.1. Educate and empower its members to operate a sustainable and economically viable agricultural operation on one hectare of land (per member?)
- 4.2. Put to optimum use all the available land in our area.
- 4.3. Cultivate an agricultural culture in our community.
- 4.4. Encourage and empower our people to improve their own living conditions.

5. Objectives

Hacop will:

- Produce three crops per year
- Repay all input costs after each crop
- Generate a liveable income for each of its members
- Follow a strict VIABILITY plan (6)
- Empower each of its members to be:
 - Self-supporting.
 - Economically viable.
 - Job creators.

6. Viability plan

6.1. Production will be done according to a very carefully worked out plan, under the supervision of an experienced commercial farmer (amended to = agricultural officer)

6.2 Will have a very strict and efficient administration

6.3 All the marketing will be done by the Management Committee

6.4. All proceeds will be deposited into the Hacop account, and transferred into plot holders' accounts on three predetermined dates annually, subject to provision 6.4, 6.5, and 6.6.

6.5 signatories to this account will be any two of the three signatories appointed by the committee (one from each area as in (1.1)

6.6 The proceeds will be administered by the administration of Hacop as follows:

6.6.1 All input costs will be re-imbursed.

6.6.2 25% of balance will be put into Capacity Building Fund.

6.6.3 This account will only be used for capacity building and in the event of crop failure

6.6.4 In the event of the balance in this account exceeding R10000,00, the general meeting can, with two-thirds majority, decide to pay the excess (excess?) to the plot holders as a bonus

6.6.5 50% of balance will be transferred into the plot holders' account as a plholders' divided .

6.6.6 The remaining 50% will be paid out to the plholders as a monthly salary over next four months.

7. Duties and responsibilities

7.1 Optimum use will be made of each plot.

7.2 Each member will undertake to maintain and look after all equipment entrusted to or her care.

7.3 Plholdership will be subject to renewal annually, and plholders will strive to prove themselves as worthy of the ideals of the organization.

7.4 This renewal will be done annually by the annual general meeting, based on the performance of the plholders and on the recommendations of the committee.

7.5 The H.A.C.O.P will ensure that annual audited reports are made available to all relevant persons and organizations.

7.6 All its members will receive all the help they may need to make a success of their involvement.

7.7 Training programs as well as on job training will be organized to ensure above.

7.8 H.A.C.O.P will ensure that total community involvement and empowerment is achieved, without discrimination of whatever kind.

7.9 H.A.C.O.P will do all in its power to ensure that the whole Mpofu District benefits as much as is possible from this project.

7.10 H.A.C.O.P will ensure that no funds are misused in any way.

8. Discipline

8.1 All members will honour the conditions and stipulations of the constitution.

8.2 All members will honour any disciplinary action (non-violent) imposed on them by the joint A.G.M. or the interim committee.

8.3 Suspension of plotholdership will only be considered after three written warnings have been given.

8.4 Suspension will only be imposed by a two-thirds majority of all the plotholders.

8.5 Disciplinary action will be considered in event of the following:

8.5.1 Any action which will endanger the sustainability ideal of the project.

8.5.2 Sustained drunkenness on duty.

8.5.3 Assault of or fighting with fellow members of the project, on the project.

8.6 If disciplinary action should result in termination of membership, full compensation of all shares that are due to the member shall be adhered to e.g. share of salary retention fund and unharvested crops on plot.

9. Affiliation

9.1 H.A.C.O.P, together with all other development projects that may exist or be initiated will be affiliated to Hertzog R.D.P, which in turn will be affiliated to Mpopu R.D.P.

9.2 H.A.C.O.P will seek to co-operate with all other projects with similar aims where this will strengthen development in the district.

10. Amendments to the constitution

10.1 Only by a two-thirds majority of the A.G.M.

11. Meetings

11.1 There will be at least three general meetings annually (of which one will be the A.G.M), at which plotholders dividends will be paid out.

11.2 All other meetings will be subject to local arrangement.

12. Dissolution of the project

12.1 Dissolution of project can only take place if agreed to by a two-thirds majority of the general meeting.

12.2 All assets shall be made available to other organization with a similar objective, preferably in the same district.

Appendix 4

Agenda for the Hacop workshop held on the 20th of January 2006

The HACOP (Fairbain) Workshop Programme: 20th Jan 2006

Sessions:

08:30 - 10:00

- 1. Understanding the scheme: (1 - 1 1/2 hours)**
 - a. What is the legal standing of the scheme in terms of its land and water leases?
 - b. What are the needs of the scheme that could be supported by the workshop?

Break for tea (10:00-10:30)

10:30 - 12:00

- 2. Understanding the Basic Business Plan (Notes from Centre for Entrepreneurship) (1 - 1 1/2 hours)**

12: 00 - 13:00

- 3. Understanding the priorities, requirements and guidelines for applying for DWAF bulk-water funding (1 hour)**

Break for lunch (13:00 14:00)

14:00 - 14:30

- 4. Illustrate/highlight the features and details of the DLA business plan (30 mins)**

14:30 - 15:30

- 5. A discussion of what may be done concerning the establishment of a Trust Fund & summary review of the Trust Property Control Act of 1988 (1 hour)**

Break for tea: (15:30-16:00)

16:00-17:00

- 6. Way forward programme and appointment of responsible persons to facilitate it (1 hours)**

Estimated Total Time for presentations: 4 ½ to 5 ½ hours

Appendix 5

PRODUCTION COSTS	2005	2006	2007	2008	2009	2010	2011	2013	2014
TOTAL	800332	762064	888789	939543	939543	939543	939543	939543	939543
TOTAL R/ha	16343	15562	18173	19210	19210	19210	19210	19210	19210
TOTAL (less Picking) R/ha	12297	11009	12527	13290	13290	13290	13290	13290	13290

The Katco Enterprise Budget

PRICING			Packout %		
TYPE	GRADE	R/TON	Year		
			3 and 4	5	6+
Lemons	Export	1267	50	55	65
	Seconds	630	20	20	15
	Local	0	30	25	20
	Average R/ton		760	823	918
Nova	Export	1333	50	60	65
	Seconds	400	0	0	15
	Local	0	50	40	20
	Average R/ton		667	800	926
Clems	Export	1333	50	60	65
	Seconds	400	0	0	15
	Local	0	50	40	20
	Average R/ton		667	800	926
Midnight	Export	1066	50	55	65
	Seconds	530	20	20	15
	Local	0	30	25	20
	Average R/ton		639	692	772
Navels	Export	1272	40	50	55
	Seconds	630	30	25	15
	Local	0	30	25	30
	Average R/ton		698	794	794
Cara Cara	Export	1386	40	50	55
	Seconds	703	30	25	15
	Local	0	30	25	30
	Average R/ton		698	794	794
Mandarins	Export	3000	50	60	70
	Seconds	600	25	20	15
	Local	0	25	20	15
	Average R/ton		1650	1920	2190
Terrocco	Export	1667	50	55	65
	Seconds	435	20	20	15
	Local	0	30	25	20
	Average R/ton		921	1004	1149
Late Navel	Export	1575	40	50	60
	Seconds	788	30	25	15
	Local	0	30	25	25
	Average R/ton		866	985	1063
Cara Cara	Export	1550	40	50	60
	Seconds	650	30	25	15
	Local	0	30	25	25

	Average R/ton				866			985		1063	
PRODUCTION YEAR	1	2	3	4	5	6	7	8	9	10	11
Lemons tons	0	0	12	25	45	60	75	75	75	75	75
Nova tons	0	0	1	12	25	45	60	60	60	60	60
Clems tons	0	0	1	12	25	45	60	60	60	60	60
Midnight tons	0	0	0	10	25	35	50	60	60	60	60
Navels tons	0	0	0	10	20	30	45	55	55	55	55
Cara Cara tons	0	0	0	10	20	30	45	55	55	55	55
Mandarins	0	0	1	12	25	45	60	60	60	65	65
Tarrocco	0	0	0	8	20	30	40	60	60	60	60
Mandarins High Density	0	0	2	20	41	65	65	65	65	65	65
Late Navel	0	0	0	10	20	30	45	55	55	55	55
Cara Cara	0	0	0	10	20	30	45	55	55	55	55

(Source: Katco, 2005)

Appendix 6

Riverside's estimated production output of different citrus fruit (over the next ten years) from black citrus farms

	Grower	20042	20052	20062	20072	20082	20092	20102	20112	20122
Clems										
	Futuse	247	247	247	247	247	247	247	247	247
	Nahamba	160	160	160	160	160	160	160	160	160
	Torties	428	428	428	428	428	428	428	428	428
	Mpukane	6	7	7	7	7	7	7	7	7
Clems Total		840	841	841	841	841	841	841	841	841
Navel										
	Futuse	783	783	783	763	742	742	717	698	657
	Mfecane	694	694	694	657	651	651	636	599	556
	Phambane	578	578	554	533	530	530	505	461	437
	Eric JV	475	475	475	475	475	426	426	426	426
	Gonzana	691	691	662	647	634	634	604	560	532
	Nahamba	363	363	339	372	411	495	569	610	668
	Torties	637	637	637	637	637	637	637	637	637
	Mbelashe	691	691	643	617	638	701	763	801	813
	Mpukane	858	858	818	802	785	785	746	706	706
	Ndlangalavhu	1018	1018	1018	964	909	909	909	877	813
	Clifford	323	323	316	308	327	381	443	474	497
Navel Total		7110	7110	6938	6775	6737	6890	6956	6849	6743
Satsuma										
	Phambane	130	130	130	130	130	130	130	130	130
	Eric JV	0	0	0	0	24	49	98	196	269
Satsuma Total		130	130	130	130	155	179	228	326	399
Grand Total		8081	8082	7909	7746	7733	7910	8025	8016	7983

Appendix 7

The total debt of the KRV black farms by 1999 and their topographic representation along the Kat River

No. (refers to map overleaf)	Farm	Citrus ha	Ciskei Agric Bank/CAC total loan in rands	KATCO loan In rands
1	Lidell	21.8	1 403.560	57.596
2	Leta's	17.5	966.881	52.310
3	Topkat	21.8	1 579.760	55.146
4	O/Grange	19.8	1 683.789	11.487
5	Cranford	23.7	122.656	0
6	Jerusalem	26.1	1 160.938	71.892
7	Eden	17.6	560.933	0
8	Konzi	25.9	685.966	305
9	Jerico	19.1	870.812	15.285
10	Krila	27.3	1 504.985	39.882
11	Jordan	21.8	703.237	0
12	Whites	23.2	650.359	0
13	Torties	36.0	1 607.492	0
14	Oakdene	21.3	775.684	138.320
15	Gonzana	22.5	771.895	0

(Source: DLA, 1999)

Appendix 8

Neglected and abandoned black farms (refer to map in Appendix 7 for farm locations)



ruined orchards at Orange Grange (4), left and right of regional road R67



Abandoned farms at Tidbury Toll (No. 14) (left). Picardy (red dot) (right) on which Local Government (Nkonkobe) has established a cheese factory

Appendix 9

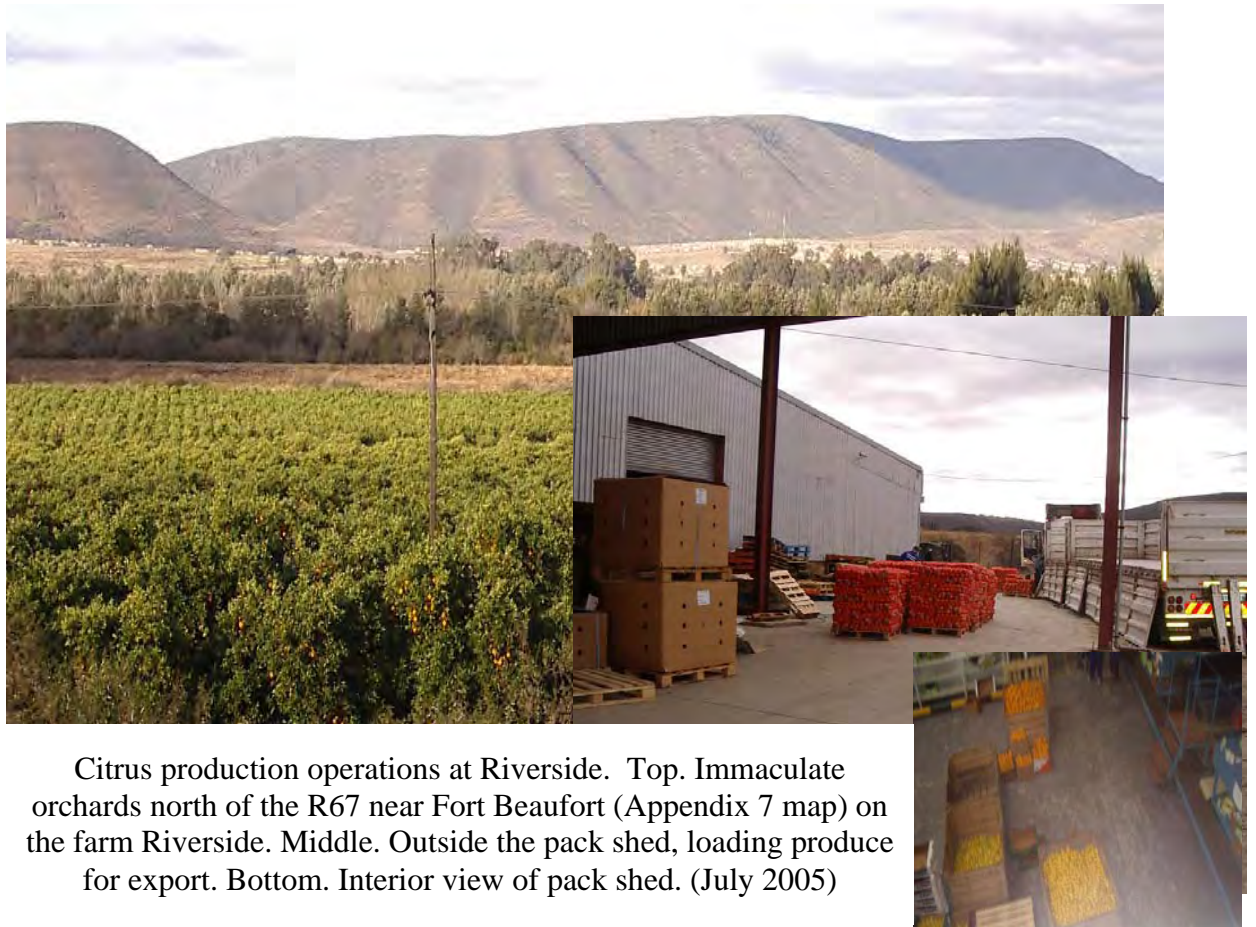
Good versus poor farm management

Top left and right photos taken from Skotile's farm (Torties) (next page Riverside good management) (refer to map in Appendix 7 for farm locations)



Bottom. Left, Whites Farm (12) (lessee-Mr. Mpukane, privately run) and right, poorly managed orchards at Oakdene (14) (lessee- Mr. Siko, Katco).

Riverside owned orchards, and pack house, in Fort Beaufort



Citrus production operations at Riverside. Top. Immaculate orchards north of the R67 near Fort Beaufort (Appendix 7 map) on the farm Riverside. Middle. Outside the pack shed, loading produce for export. Bottom. Interior view of pack shed. (July 2005)

Appendix 10

Abbreviated Agenda of the Alice Kat Riverside Workshop 13 July 2005

1. Purpose	<ul style="list-style-type: none">a. Revitalise the Alice Kat Citrusb. To prepare for 28 July follow up at ECDCc. Present a unified approach
2. Participants	Colin –Riverside Mericks – Tyumie Fly-upper Kat Daniel Cape Spencer- Iona Xolile-observer Cornelius-AgriSA Harry-chair Hambile-Lower Kei Bruce-Katco
3. Time and place	13 July 2005 10 AM Riverside pack shed
4. Agenda	<ul style="list-style-type: none">a. Technical, from filled in by weeks end, follow up lines drift, structureb. sec21 co decided onc. side shows considered laterd. eco-tourisme. transportf. Cattleg. Servicesh. access fundsi. try for grant moneyj. rehabilitate & establish citrusk. skills transferl. master development planm. 22 bus plans

Appendix 11

The Department of Water Affairs and Forestry's application form for grants to emerging farmers



**DEPARTMENT: WATER AFFAIRS AND FORESTRY
REPUBLIC OF SOUTH AFRICA**

185 Schoeman Street, Sedibeng Building, Pretoria, 0001

Private Bag X313, Pretoria, 0001

Tel: (012) 336 8066 Fax: (012) 323 4472 / (012) 326-2715

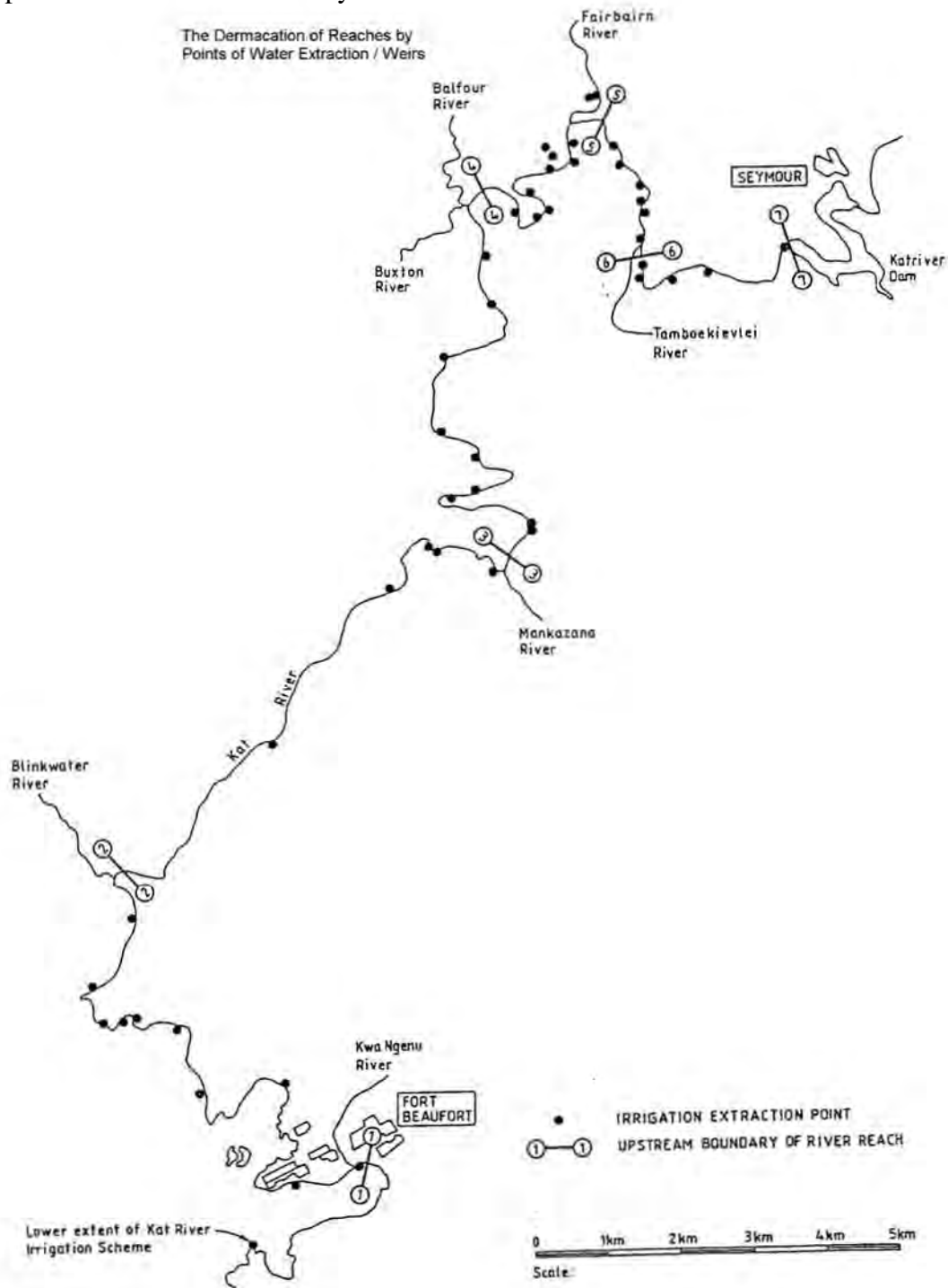
***APPLICATION FORM FOR FINANCIAL ASSISTANCE TO
RESOURCE POOR FARMERS SUBMITTED INDIVIDUAL
BENEFICIARIES***

Particulars of the applicant

Title				Surname						
First names in full										
Date of birth										
Occupation										
Identity number						Home tel. no. & code				
Postal address						Work tel. no. & code				
						Fax no. & code				
		Postal Code				Cellphone no.				
Are you a member of a Water User Association or any legal entity?							Yes		No	
If yes, Name of a WUA or Legal Entity										
What kind of agricultural activities are you engaged in?										

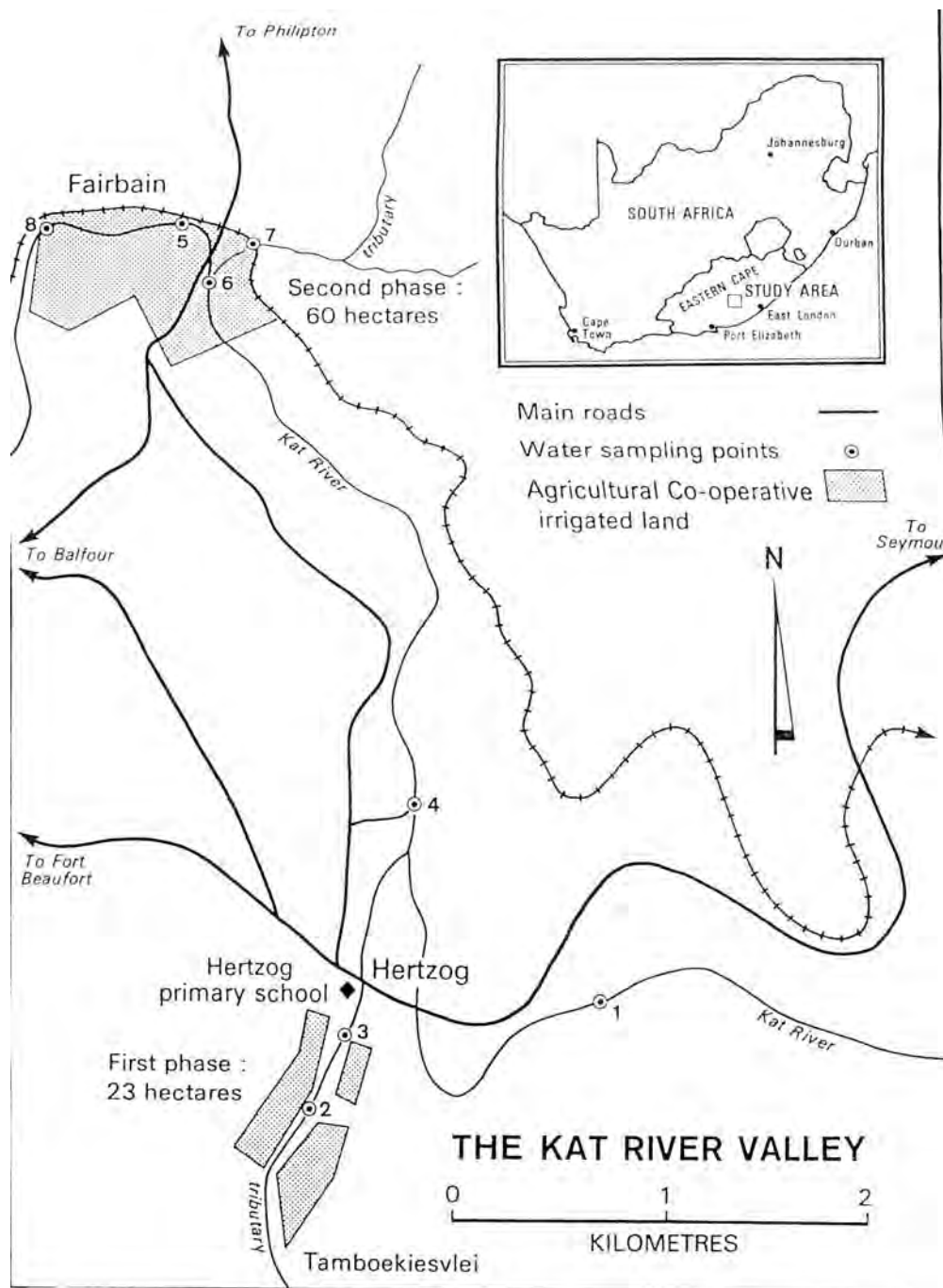
Appendix 12

Map of KRV weirs and boundary river reaches



Seven main water abstraction points are illustrated between the Kat River Dam and the Lower Kat
 (Source: KDOR, 1989)

Appendix 13
 Map of the three Upper KRV villages



Appendix 14

Successful Hacoop irrigation farms in 1996



Successful vegetable farming in Fairbain 1996



Successful farming in Hertzog 1996

Appendix 15

Pictures of Hacop meeting/workshop



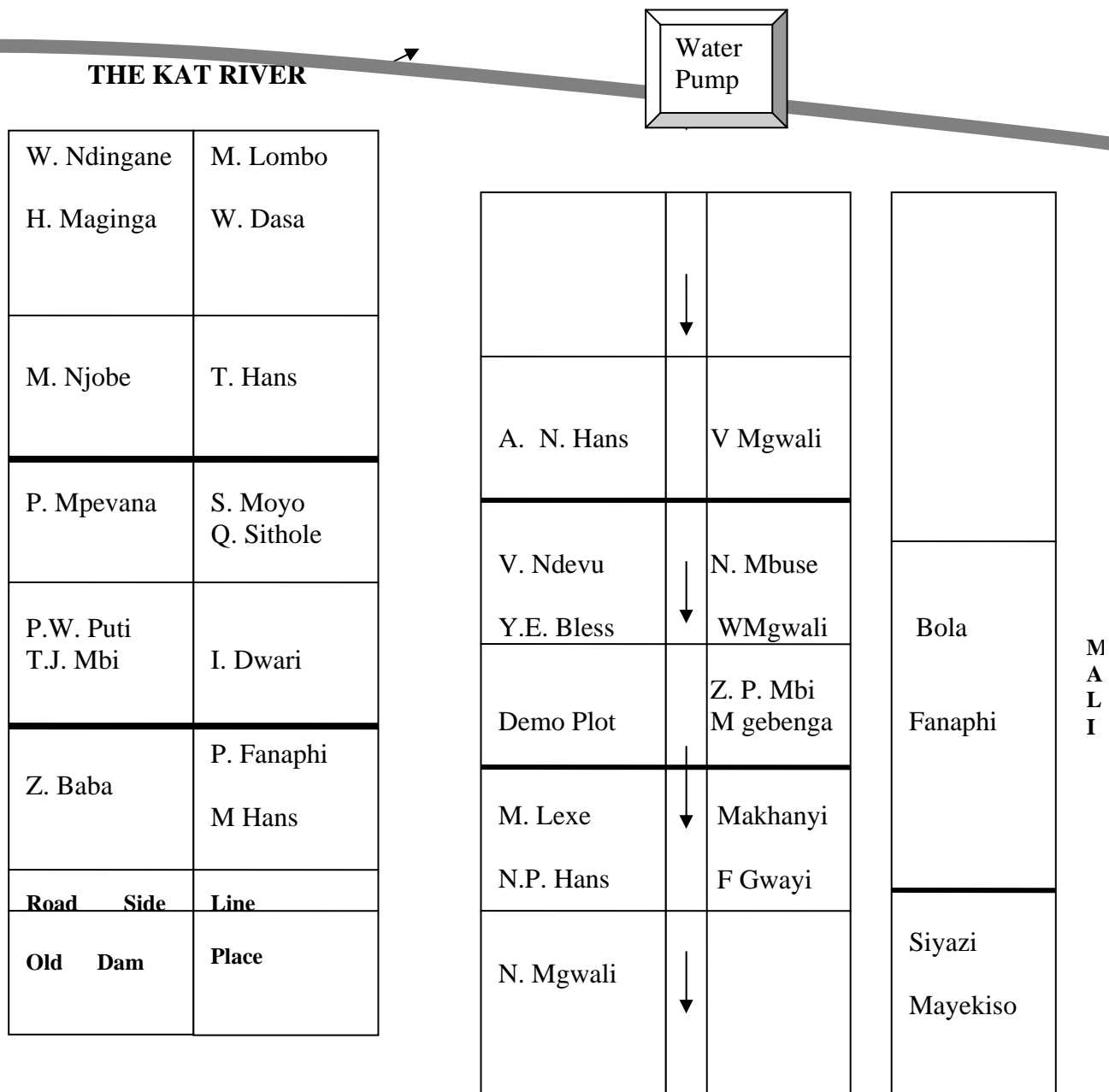
The first meeting between Hacop member in Fairbairn and researchers
Held on 30th November 2004



A business and debrief workshop facilitated by Rhodes University
Department of Economics in 20th January 2006

Appendix 16

Layout of division of land plots in Fairbain (vegetable side): Hacop (2005)



(Source: Hacop, 2005)

Appendix 17

Table of electricity payments: contributions September 2004 to 2005

Member's name	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
L.Baba	70-00	70-00										
I. Dwani	70-00	70-00					70-0	30-00	70-00	40-00		
N.Bebe nga										70-00		
T.F.Gw ayi										70-00		
N.A.Ha ns						70-0	30-0	40-00	70-00	20-00 80-00		
M.T.Le ve	70-00	70-00	70-00				70-00		70-00			
N.E.Ma kanyi	70-00	70-00	70-00	70-00		70-00	70-00	70-00	70-00	70-00		
C.Maye kiso	70-00	70-00	70-00	30-00				30-00	70-00			
Z.P.Mbi	70-00	70-00					70-00	30-00				
N.P.Mb use	70-00						70-00	30-00	70-00			
S.J.Mg wali	70-00	70-00	70-00	70-00			70-00	70-00	70-00	70-00		
N.C.Mg wali												
N.V.Mg wali	70-00	70-00	70-00	70-00	40-00 30-00	70-00	70-00	70-00	70-00			
W.P.M pevana	70-00	70-00	70-00	70-00	70-00	70-00	70-00	70-00	70-00	70-00		
T.V.Nd evu	70-00	70-00	70-00	?	*		70-00		70-00	70-00		
N.Ndzi weni	70-00	70-00	70-00	70-00	30-00							
M.Njob e	70-00	70-00	70-00	70-00		70-00	50-00	70-00	70-00	70-00		
B.Siyazi	70-00	70-00	70-00	30-00			70-00					
N.Wayi za												
M.Hans												
L.Mank ayi		SHOULD STRART IN APR 2005										
T.Daba						70-00		70-00				
M.Phezi sa						70-00	50-00	20-00				

(Source,:Hacop, 2005)

Appendix 18

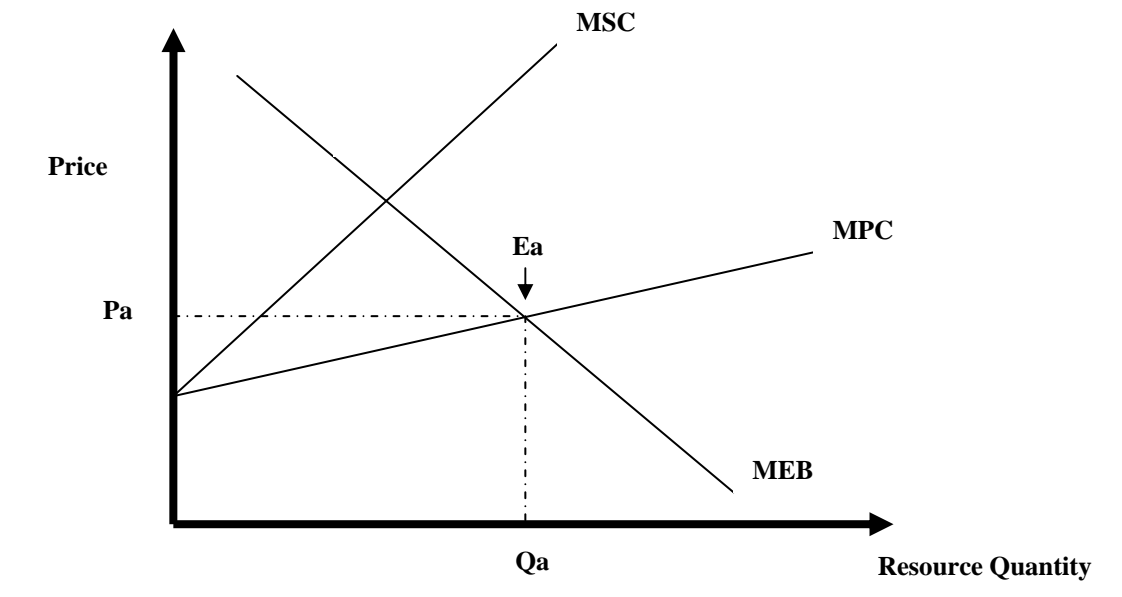
Discussion review of Ostrom (1990), Dales (1994)

COLLECTIVE ACTION IN THE MANAGEMENT OF COMMON PROPERTY

The three influential models on collective action in the management of common resources chosen for the discussion are: a) Hardin's (1968) 'tragedy of the commons', b) the prisoner's dilemma (game theory) (Dawes, 1973, 1975 cited in Ostrom, 1990:3) and c) the logic of collective action (Olson, 1965). What these models have in common is their acceptance and use of neoclassical economic assumptions of self interested and rational individuals (Fryer, 2003:1-15), whose opportunistic behaviour in the use of common pool resources leads to inefficient social welfare outcomes. Extreme inefficient outcomes can be the degradation of the common pool resources and their extinction (Ostrom, 1990:8 and Dales, 1968:50-59).

The tragedy of the commons

The tragedy of the commons thesis asks the reader to imagine a hypothetical grazing pasture open to all community herders. It should be assumed that zero property rights, to the use of the pasture (open access), exists, which is the same as Dales' (1994) definition of common property rights. "Each herder is motivated to add more and more animals (to the pasture) because he receives the direct benefit of his own animals (private benefit) and bears only a share of the costs resulting from overgrazing" (Ostrom, 1990:2). This is the root of a negative externality, where resource consumption, as illustrated in fig 3.1, occurs at **Ea** and where Marginal Social Costs (MSC) are higher than Marginal Private Costs (MPC) (Black et al., 1999:27).



Negative Externality (MSC-MPC)

(Source: Black et al., 2005:27)

When the quantity of resources consumed is at E_a , over time the resource will be depleted because what individuals are paying for the resource use is less than what they are supposed to pay as a community. Therefore, “(t)herein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit - in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons” (Hardin, 1968: 1244). The same model was envisioned in Aristotle’s (Politics book ii) and Hobbes’s theory of ‘the state of nature’ (cited in Ostrom, 1990:2-3) where in pursuit of self-interests individuals fight one another to survive. In some environmental economics literature (Cropper and Griffiths, 1994; Norman, 1984 and Thomson, 1977 cited in Ostrom, 1990:3) evidence of diminishing tropical forests for firewood and other uses with increasing global populations is cited as proof of the pervasive nature of ‘the tragedy of the commons’ (Ostrom, 1990:23).

The prisoner's dilemma

The prisoner's dilemma encapsulates benefits and costs for self-interested individual behaviour (Ostrom, 1990:1-23 and Kuhn, 2003). If the private individual gains from acting in a selfish manner outweigh the gains from acting cooperatively, individuals will act selfishly. In the prisoner's dilemma, the constraints to two herders or prisoners are that they cannot predict the actions of the other herder and they cannot leave the pasture (immobility). However, they both have information about the private and collective gains that could be made from either cooperating towards or defecting from a socially efficient use of the pasture (Kuhn, 2003).

To help explain the prisoner's dilemma, Ostrom (1990:3-5) asks the reader to assume that the grazing capacity of some pasture is L . Therefore each herder, with equal power distribution, must use $L/2$ capacity for the pasture to be maintained at an efficient and sustainable level (i.e. cooperation). Defection would happen when either one of the herders uses more than the agreed upon $L/2$ capacity. In the long run, this defection strategy will lead to overgrazing. On the other hand, if both herders cooperate and use their $L/2$ rations they would each make a ten point profit, but if they both defect they gain zero point profits. The defection strategy is a dominant strategy for the two herders because each self interested herder cannot predict the other's strategy but hopes the other would cooperate, and when only one of the herders cooperates the defector makes 11 point profits where the cooperator makes only 1 point profits. Therefore, in comparison, defection pays more than cooperation to individuals and this makes the defection strategy dominant for self-interested herders, as illustrated in table 3.1. Each herder hopes to make the highest gains from free-riding the pastoral arrangement (i.e. gains without pay). In table 3.1, the four possible gains and/or losses from two possible actions from the herders are depicted (Ostrom, 1990). Another representation of this game as described by Kuhn (2003) was presented in chapter two.

The prisoner's dilemma

PROFITS				
Herders' actions	Both Cooperate	One Defects / One Cooperate		Both Defect
Herder one	10	-1	or 11	0
Herder two	10	11	or -1	0

(Adapted from Ostrom, 1990:4)

From the table, it pays more to defect while the other player cooperates (11 point profits). The game's outcomes are insightful because it depicts neoclassical assumptions about rational selfish behaviour leading to *irrational* outcomes for the collective (Ostrom, 1990:5). However, this is the case, as discussed in chapter two, because of the nature of public goods, for which market failures are prevalent.

The logic of collective action

Olson (1965) in *the logic of collective action* thesis challenges Truman's (1958 in Ostrom 1990:5-6) *group theory* "that individuals with common interests would voluntarily act so as to try to further those interests". Olson's (1965) challenge shares the same pessimistic conclusions of the '*tragedy of the commons*' and '*the prisoner's dilemma*', that self interested individuals' use of common property lead to inefficient social outcomes.

"The idea that groups tend to act in support of their group interests is supposed to follow logically from this widely accepted premise of rational, self interested behaviour. In other words, if the members of some group have a common interest or object, and if they would all be better off if that objective were achieved, it has been thought to follow that the individuals in that group would, if they were rational and self interested, act to achieve that objective" (Olson, 1965:1).

However, for Olson (1965:2), the conclusion is not true unless the group in question is small, or some external authority coerces individuals to act in their collective interest. Olson's (1965) mention of a coercive force advocates government intervention as another effective measure in common pool resource management.

Reflection on the three models

The central theme in the three models is that the free rider problem always exists in the use of common pool resources. “Whenever one person cannot be excluded from the benefits that others provide, each person is motivated not to contribute to the joint effort, the collective benefit will not be produced” (Ostrom, 1990:6).

Importantly, for government policy formulation, the ‘metaphoric’ use of discussed models or theses, applying generically to all situations where common pool resources exist may lead to unintended and/or unwelcome consequences. If no empirical evidence or data are gathered on what institutional and socio-economic conditions prevail in different settings, application of policy using the models unquestioned may lead to inefficient social outcomes (Ostrom, 1990:10-23). It was earlier pointed out that the models assume as their premise that common property rights are equivalent to open access for all (Dales, 1994:174-187). However, this is not always true (Ostrom, 1990:1-23 and Quiggin, 1988). In the case of the prisoner’s dilemma, the immobility constraint is also assumed without questioning, but this assumption is not always relevant or even realistic in some real life contexts.

In real life policy applications, the metaphorical application of the theories has led to extreme policies that either advocate central government control of common resource use, especially in developing countries (Heilbroner, 1974) or, at the other extreme, the imposition of private property rights and the creation of full pseudo-markets (Demsetz, 1967: 347-359). The fallibility of these extreme policy measures are discussed in the following section.

Appendix 19

The 2004 KRV Household Survey Tool

ADULTS (18 YEARS AND ABOVE)

[WRITE WITH PENCIL!]

To be filled in by Interviewer:

1. HOUSEHOLD ID:.....
2. NAME OF PRIMARY RESPONDENT.....CODE.....
3. ENUMERATION AREA..... NAME OF PLACE.....
4. DATE OF VISIT
DATE OF SECOND VISIT (if necessary).....
5. INTERVIEWER NAME/CODE.....
6. INTERVIEW START TIME.....
8. FAMILY POSITION OF PRIMARYRESPONDENT.....
9. YOUR PHONE NUMBER OR CELL.....
9. INTERVIEW END TIME.....

To be filled in by checker

CHECK BACK

1. NAME OF CHECKER.....
2. DATE CHECKED.....

To be filled in by capturer

DATA CAPTURE

1. NAME OF CAPTURER.....
2. DATE CAPTURED.....

LIST OF MODULES

SECTION 1

1. DEMOGRAPHICS:

FAMILY DWELLING
FAMILY HISTORY
HOUSEHOLD MEMBER CHARACTERISTICS
ENVIRONMENTAL EDUCATION/AWARENESS AND WORK
EXPERIENCE
LANGUAGE COMPETENCY
WATER SOURCE AND USE

2. WATER POLICY INDIVIDUAL ATTITUDES ON ASPECTS OF THE LAW

KNOWLEDGE OF AND ATTITUDE TOWARDS THE WATER LAW
KNOWLEDGE/ATTITUDE TOWARDS WATER ORGANISATIONS IN KRV

3. LONG TERM PROPERTY INVESTMENTS (IMMOVABLE PROPERTY BUT INCLUDING LIVESTOCK) (LEGAL AND PERCEIVED)

- 3.1 ATTITUDE TOWARDS COMMON, PRIVATE PROPERTY RIGHTS AND OPEN ACCESS
- 3.2 CURRENT COMMON, PRIVATE AND PERCEIVED PROPERTY RIGHTS
- 3.3 FUTURE EXPECTED COMMON, PRIVATE AND PERCEIVED PROPERTY RIGHTS
- 3.4 HISTORICAL/CULTURAL/SOCIAL ATTACHMENTS

4. PUBLIC PARTICIPATION

- 4.1 GENERAL PUBLIC PARTICIPATION (i.e. NOT ENVIRONMENT RELATED)
- 4.2 PUBLIC PARTICIPATION IN ENVIRONMENTAL ISSUES
COMMUNITY MEETINGS
- 4.3 LANGUAGE ISSUES IN PUBLIC PARTICIPATION

SECTION 2

5. INDIVIDUAL ENVIRONMENTAL USES AND VALUES

- 5.1 ENVIRONMENTAL USES
- 5.2 BACKGROUND POLICY INFORMATION TO RESPONDENT
- 5.3 INDIVIDUAL ENVIRONMENTAL VALUES

A. DEMOGRAPHICS:

Family dwelling (mark before entering the house)

FORMAL		T I C K
Brick house on a separate stand	1	
Detached Brick house in backyard	2	
Flat/room on separate stand	3	
Flat/room in backyard	4	
Other specify	5	
INFORMAL		
Traditional mud house on separate stand	6	
Traditional mud house on common stand	7	
Informal structure/ e.g. shack in squatter settlement	8	
Informal structure/ e.g. shack in the backyard of formal house	9	
Other specify	10	

WATER SOURCE/USE

1.2.1 Where does your family find its water for **HOUSEHOLD** use?

WATER SOURCE		<i>T I C K</i>
Directly from The Kat River	1	
Directly from another stream in the valley	2	
Piped from the Kat River	3	
Piped from another stream in the valley	4	
Piped and purified from the Kat River (e.g. Seymour Dam)	5	
Piped and purified from another stream in the valley (another dam)	6	
Boreholes / Groundwater	7	
Rain water	8	
Don't know	9	

1.2.2 Where does your family find its water for other uses E.G. **IRRIGATION etc.?**

WATER SOURCE		<i>T I C K</i>
Directly from The Kat River	1	
Directly from another stream in the valley	2	
Piped from the Kat River	3	
Piped from another stream in the valley	4	
Piped and purified from the Kat River (e.g. Seymour Dam)	5	
Piped and purified from another stream in the valley (another dam)	6	
Boreholes /Groundwater	7	
Rain water	8	
Don't know	9	

1.2.3 (instruction to interviewer!) Write in full any other information not captured by the above questions **(1.2):**

FAMILY HISTORY (to be answered by head or wife or other responsible member of household)

1.3.1 Did this family move from somewhere else before settling in this area?

1. Yes	2. No	3. Don't know
--------	-------	---------------

1.3.2

If yes, how long ago did the family settle here? (If answer 1.3.1 is No (2) tick 7 in 1.3.2)

Over 50 years	7	
Over 40 years	6	
Over 30 years	5	
Over 20 years	4	
Over 10 years	3	
Over 5 years	2	
Less than 5 years	1	
Don't know	0	

1.3.3 If yes, why did the family move from old area to this area?
(If answer 1.3.1 is No (2) tick 99 in 1.3.3)

Moved by government	1		Pensioned from old job	8	
Moved for a job	2		Not allowed to stay in old area	9	
Moved to join other family	3		Wanted my own place	10	
Could not afford to rent	4		Evicted from old area	11	
Married and wanted own area	5		Moved because of violence	12	
Was retrenched / fired in old job	6		Other specify	13	
Moved to start a business	7		Don't know	0	
			Not applicable	99	

1.3.4 Does this family have other relatives present in the Kat River Valley?

1. Yes	2. No	3. Don't know
--------	-------	---------------

e. If Yes to 1.3.4 who are they and what is your relationship to them?

Family Surname	Relationship
1.	
2.	
3.	
4.	
5.	

1.3.5 (instruction to interviewer!) Write in full any other information not captured by the above questions (1.3):

1.4 House member characteristics (INSTRUCTION! Ask HEAD or WIFE or other RESPONSIBLE MEMBER)

1.4.1	1.4.2	1.4.3	1.4.4	1.4.5	1.4.6	1.4.7	1.4.8	1.4.9	1.4.10
Hh	N	1.	1.4.	1.4.5	RACE	LAB-	Monthly	Highest	Government
R	A	4.	4	R	1. Black	OUR	INCMON	level of	Grant
O	M	3	G	E	2. Colou	ACTIVITY	1.No income	education	1. pension
S	E	A	E	N	3. Indian	1. Professional	2.R1-500	1. none	2.disability
T	R	G	N	D	4. White	eg teacher/police	3.501-800	2. Sub A-B	3.child
E	R	E	E	R	5. Other	2. Farming for	4.801-1500	3. Std1	4. other
R	R	A	R	I	6. N/A	others/market-	5.1501-2500	4. Std2	(specify)
N	R	G	R	P		commercial	6.2501-3500	5.Std3	
U	R	E	M=	TO		3. Farming for	7.3501-6000	6.Std4	
M	R	3	1	Head		family-	8.6001-10000	7.Std5	
B	R	A	F=2			subistence	9. above 10000	8.Std6	
E	R	G	O=3			4. Animal		9.Std7	
R	R	E				Husbandry/herdi		10.Std8	
R	R	E				ng		11.Std9	
R	R	E				5. Processing		12.St10	
R	R	E				food for storage		13.	
R	R	E				(for a farmer)		Post-	
R	R	E				6. Other work on		Matric-Dip	
R	R	E				farm (specify)		14.	
R	R	E				7.Domestic		Tech	
R	R	E				8.Weaving/Sawi		Degree	
R	R	E				ng		15. Unive-	
R	R	E				9. Family		Degree	
R	R	E				Business-other		16.	
R	R	E				than farming		Other	
R	R	E				10. Self-			
R	R	E				employment/spe			
R	R	E				cify			
R	R	E				11. Non			
R	R	E				Agricultural			
R	R	E				wage			
R	R	E				12. Community			
R	R	E				project			
R	R	E				13. Water/land			
R	R	E				project			
R	R	E				14. Other cash			
R	R	E				earning activity			
R	R	E				15. Free			
R	R	E				gathering of fruit			
R	R	E				and food			
R	R	E				16 no labour			
R	R	E				activity			
R	R	E				17			
R	R	E				school/colleg			
1.									
head									
2.									
3.									
4.									

1.4.11 (instruction to interviewer!) Write in full any other information not captured by the above questions (1.4) and write to which family member the information applies:

1.5 Environmental education / awareness and work experience

1.5.1	1.5.2a	1.5.2.b	1.5.3a	1.5.3.b
Hh R O S T E R N U M B E R	ENVIRONMENTAL EDUCATION 1. formal-registered-at school/college/university) 2. formal workshops (by NGO e.g. Rhodes/other 3. informal workshop/s by NGO 4. Private reading of journals 5. Media-Print/Visual/Radio 6. (Combination of 2-6)* 7. Zero education	NUMBER OF TIMES OR DAYS in programme 1. one year and above 2. six months and above 3. one month and above 4. one week and above 5. less than a week 6. less than a day 7. zero time	ENVIRONMENTAL WORK EXPERIENCE 1. formal and permanent work experience 2. formal part time work experience 3. informal work experience 4. (combination of 2 and 3)* 5. Zero work experience	NUMBER OF TIMES OR DAYS in programme 1. one year and above 2. six months and above 3. one month and above 4. one week and above 5. less than a week 6. less than a day 7. zero time
1. (head)				
2.				
3.				

4.				
5.				
6.				

1.5.3 (instruction to interviewer!) Write in full any other information not captured by the above questions (1.5) and write to which family member the information applies:

1.6 Linguistic competency

1.6.1	1.6.2	1.6.3	1.6.4	1.6.5
Hh	ENGLISH	AFRIKAANS	XHOSA	OTHER (SPECIFY)
R O S T E R N U M B E R	1. SPEAK AND READ AND WRITE WELL 2.SPEAK AND READ WELL 3.EITHER SPEAK OR READ WELL 4. SPEAK AND READ AND WRITE NOT V. WELL 5.SPEAK AND READ NOT V WELL 6.EITHER SPEAK OR READ NOT V. WELL 7. ZERO COMPETENCY	1. SPEAK AND READ AND WRITE WELL 2.SPEAK AND READ WELL 3.EITHER SPEAK OR READ WELL 4. SPEAK AND READ AND WRITE NOT V. WELL 5.SPEAK AND READ NOT V WELL 6.EITHER SPEAK OR READ NOT V. WELL 7. ZERO COMPETENCY	1. SPEAK AND READ AND WRITE WELL 2.SPEAK AND READ WELL 3.EITHER SPEAK OR READ WELL 4. SPEAK AND READ AND WRITE NOT V. WELL 5.SPEAK AND READ NOT V WELL 6.EITHER SPEAK OR READ NOT V. WELL 7. ZERO COMPETENCY	1. SPEAK AND READ AND WRITE WELL 2.SPEAK AND READ WELL 3.EITHER SPEAK OR READ WELL 4. SPEAK AND READ AND WRITE NOT V. WELL 5.SPEAK AND READ NOT V WELL 6.EITHER SPEAK OR READ NOT V. WELL 7. ZERO COMPETENCY
1. (head)				
2.				
3.				
4.				

5.				
6.				
7.				
8.				

1.6.6 (instruction to interviewer!) Write in full any other information not captured by the above questions (1.6) and write to which family member the information applies:

2. Individual Attitudes on aspects of the New Water Law

2.1 Knowledge of and attitude towards the New Water Law (1997)

2.1.1 Hh R O S T E R N U M B E R	2.1.2 <u>KNOWLEDGE OF THE NEW WATER LAW</u> HOW WELL DO YOU KNOW THE NWP? 1. VERY WELL 2. FAMILIAR 3. NOT FAMILIAR 4. NO ANSWER AVAILABLE OR PREFER NOT TO ANSWER	2.1.3 <u>FEELINGS ABOUT THE PARTICIPATION OBJECTIVE</u> HOW DO YOU FEEL ABOUT EVERYONE PARTICIPATING IN MANAGING THE CATCHMENT? 1. IT IS A VERY GOOD IDEA 2. IT IS O.K. 3. DON'T KNOW 4. IT IS NOT A GOOD IDEA 5. NO ANSWER OR PREFER NOT TO ANSWER	2.1.4 <u>FEELINGS ABOUT THE EQUITY OBJECTIVE</u> HOW DO YOU FEEL ABOUT ALLOWING EVERYONE A RIGHT TO USE WATER? 1. IT IS A VERY GOOD IDEA 2. IT IS O.K. 3. DON'T KNOW 4. IT IS NOT A GOOD IDEA 5. NO ANSWER OR PREFER NOT TO ANSWER	2.1.5 <u>FEELINGS ABOUT CONSERVATION/RESERVE PROTECTION OBJECTIVE</u> HOW DO YOU FEEL ABOUT SETTING A MAXIMUM LEVEL OF WATER THAT EVERYONE (TOGETHER) CAN USE FROM THE KAT RIVER? 1. IT IS A VERY GOOD IDEA 2. IT IS O.K. 3. DON'T KNOW 4. IT IS NOT A GOOD IDEA 5. NO ANSWER OR PREFER NOT TO ANSWER
1. (head)				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

2.1.6 (instruction to interviewer!) Write in full any other information not captured by the above questions (2.1) and write to which family member the information applies:

2.2 Knowledge of and attitude towards water related organisations operating in the KRV

2.2.1	2.2.2	2.2.3	2.2.4	2.2.5	2.2.6
Hh R O S T E R N U M B E R	<u>KNOWLEDGE OF THE CATCHMENT FORUM</u> HOW WELL DO YOU KNOW THE ACTIVITIES OF THE CF? 1. VERY WELL 2. FAMILIAR 3. NOT FAMILIAR 4. NO ANSWER AVAILABLE OR PREFER NOT TO ANSWER	<u>KNOWLEDGE OF THE WATER USER ASSOCIATION</u> HOW WELL DO YOU KNOW THE ACTIVITIES OR CONSTITUTION OF THE WUA? 1. VERY WELL 2. FAMILIAR 3. NOT FAMILIAR 4. NO ANSWER AVAILABLE OR PREFER NOT TO ANSWER	<u>FEELINGS ABOUT THE CF ACTIVITIES</u> HOW DO YOU FEEL ABOUT THE WORK OR FUNCTIONS OF THE CF? 1. IT IS DOING A VERY GOOD JOB 2. IT'S WORK IS O.K. 3. DON'T KNOW 4. IT IS NOT DOING GOOD WORK 5. NO ANSWER OR PREFER NOT TO ANSWER	<u>FEELINGS ABOUT THE WUA ACTIVITIES</u> HOW DO YOU FEEL ABOUT THE WORK OR FUNCTIONS OF THE WUA? 1. IT IS DOING A VERY GOOD JOB 2. IT'S WORK IS O.K. 3. DON'T KNOW 4. IT IS NOT DOING GOOD WORK 5. NO ANSWER OR PREFER NOT TO ANSWER	<u>FEELINGS ABOUT THE PROPOSED CMA</u> HOW DO YOU FEEL ABOUT THE PROPOSED CMA TO MANAGE ALL THE KAT RIVER WATER MANAGEMENT? 1. IT IS A VERY GOOD IDEA 2. IT IS O.K. 3. DON'T KNOW 4. IT IS NOT A GOOD IDEA 5. I DON'T KNOW ABOUT THE CMA 6. NO ANSWER OR PREFER NOT TO ANSWER
	1. (head)				
	2.				
	3.				
	4.				
	5.				
	6.				

2.2.7 (instruction to interviewer!) Write in full any other information not captured by the above questions (2.2) and write to which family member the information applies:

2. Long term property investments (immovable but include livestock) - (legal and perceived)

(INSTRUCTION TO INTEVIWER! INDICATE ALL OF THE RIGHTS OF EACH Hh MEMBER

3.1 ATTITUDES TOWARDS COMMON, PRIVATE PROPERTY RIGHTS AND OPEN ACCESS:

Note for interviewer and interviewee: In this survey tool, property rights in general relate to the following; a possession of a title-deed, a receipt, a lease or some other proof document that a property or some resource/object can be used by you or those you have chosen. If only you are the exclusive owner or user, then you should have private/individual rights to the property, if the document names you and somebody else as owners of the property then you have common/communal property rights to the property. However, if you (alone or as a group) don't have any title deed or proof document, however you still feel that you own some property or some object, then you only have perceived (common or private) property rights to the property

3.1.1 Hh R O S T E R N U M B E R	3.1.2 <u>COMMON PROPERTY RIGHTS</u> HOW DO YOU FEEL ABOUT THE COMMUNAL OWNERSHIP OF ENVIRONMENTAL RESOURCES? 1. IT IS A VERY GOOD THING 2. IT IS O.K I HAVE NO PROBLEM WITH THAT 3. IT IS NOT A GOOD THING 4. I DON'T KNOW 5. RATHER NOT SAY (TO INTERVIEWER! WRITE REASONS WHY AFTER CHOICE NUMBER)	3.1.3 <u>PRIVATE PROPERTY RIGHTS</u> HOW DO YOU FEEL ABOUT INDIVIDUAL ENVIRONMENTAL RESOURCE OWNERSHIP? 1. IT IS A VERY GOOD THING 2. IT IS O.K I HAVE NO PROBLEM WITH THAT 3. IT IS NOT A GOOD THING 4. I DON'T KNOW 5. RATHER NOT SAY (TO INTERVIEWER! WRITE REASONS WHY AFTER CHOICE NUMBER)	3.1.4 <u>NO PROPERTY RIGHTS</u> HOW DO YOU FEEL ABOUT ENVIRONMENTAL RESOURCES THAT NOBODY OWNS? 1. IT IS A VERY GOOD THING 2. IT IS O.K I HAVE NO PROBLEM WITH THAT 3. IT IS NOT A GOOD THING 4. I DON'T KNOW 5. RATHER NOT SAY (TO INTERVIEWER! WRITE REASONS WHY AFTER CHOICE NUMBER)
1. head			
2.			
3.			
4.			

3.2 Current private, common and perceived property rights

3.2.1 Hh R O	3.2.2 <u>LEGALLY DEFINED PRIVATE PROPERTY RIGHTS</u> DO YOU HAVE LEGAL PRIVATE RIGHTS TO THE	3.2.3 <u>LEGALLY DEFINED COMMON PROPERTY RIGHTS</u> DO YOU HAVE LEGAL COMMON RIGHTS TO	3.2.4 <u>PERCEIVED-(COMMON LAW) COMMON PROPERTY</u> DO YOU FEEL LIKE YOU HAVE RIGHTS TO
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S T E R N U M B E R	FOLLOWING: TITLE DEED –(PERMANENT) TO: 1. LAND 2. BUSINESS 3. HOUSE/ BLD STRUCT 4. IRRIGATION EQUIP 5. SCHEDULED WATER USER RIGHTS (OLD WATER LAW) 6. OTHER ENVIRONMENTAL RESOURCE RIGHT 7. POLLUTION RIGHTS 8. LIVESTOCK 9. OTHER (SPECIFY) LEASE (TEMPORARY/RENEWABLE) TO: 10. TO LAND 11. BUSINESS 12. HOUSE/BLG STRUCT 13. IRRIGATION EQUIP 14. SCHEDULED WATER USER RIGHTS 15. OTHER ENVIRONMENTAL RESOURCE RIGHT 16. POLLUTION RIGHTS 17. LIVESTOCK 18. OTHER (SPECIFY)	THE FOLLOWING: TITLE DEED –(PERMANENT) TO: 1. LAND 2. BUSINESS 3. HOUSE/ BLD STRUCT 4. IRRIGATION EQUIP 5. SCHEDULED WATER USER RIGHTS (OLD WATER LAW) 6. OTHER ENVIRONMENTAL RESOURCE RIGHT 7. POLLUTION RIGHTS 8. LIVESTOCK 9. OTHER (SPECIFY) LEASE (TEMPORARY/RENEWABLE) TO: 10. TO LAND 11. BUSINESS 12. HOUSE/BLG STRUCT 13. IRRIGATION EQUIP 14. SCHEDULED WATER USER RIGHTS 15. OTHER ENVIRONMENTAL RESOURCE RIGHT 16. POLLUTION RIGHTS 17. LIVESTOCK 18. OTHER (SPECIFY)	THE FOLLOWING (THOUGH YOU DON'T HAVE LEGAL PAPERS) PERMANENT TO: 1. LAND 2. BUSINESS 3. HOUSE/ BLD STRUCT 4. IRRIGATION EQUIP 5. SCHEDULED WATER USER RIGHTS (OLD WATER LAW) 6. OTHER ENVIRONMENTAL RESOURCE RIGHT 7. POLLUTION RIGHTS 8. LIVESTOCK 9. OTHER (SPECIFY) (TEMPORARY) TO: 10. TO LAND 11. BUSINESS 12. HOUSE/BLG STRUCT 13. IRRIGATION EQUIP 14. SCHEDULED WATER USER RIGHTS 15. OTHER ENVIRONMENTAL RESOURCE RIGHT 16. POLLUTION RIGHTS 17. LIVESTOCK 18. OTHER (SPECIFY)
	1. (head)		
2.			
3.			
4.			
5.			
6.			
7.			
8.			

3.3 Future **expected** private, common and perceived property rights

3.3.1 Hh R O S T E R N U M B E R	3.3.2 <u>LEGALLY DEFINED PRIVATE PROPERTY RIGHTS</u> DO YOU EXPECT TO HAVE LEGAL PRIVATE RIGHTS IN THE FUTURE TO THE FOLLOWING: TITLE DEED –(PERMANENT) TO: 1. LAND 2. BUSINESS 3. HOUSE/ BLD STRUCT 4. IRRIGATION EQUIP 5. SCHEDULED WATER USER	3.3.3 <u>LEGALLY DEFINED COMMON PROPERTY RIGHTS</u> DO YOU EXPECT TO HAVE LEGAL COMMON RIGHTS IN THE FUTURE TO THE FOLLOWING: TITLE DEED –(PERMANENT) TO: 1. LAND 2. BUSINESS 3. HOUSE/ BLD STRUCT 4. IRRIGATION EQUIP 5. SCHEDULED WATER USER	3.3.4 <u>PERCEIVED-(COMMON LAW) COMMON PROPERTY</u> DO YOU EXPECT, AT SOME POINT, TO FEEL LIKE HAVE RIGHTS TO THE FOLLOWING (THOUGH YOU WONT HAVE LEGAL PAPERS) TO: 1. LAND 2. BUSINESS 3. HOUSE/ BLD STRUCT 4. IRRIGATION EQUIP 5. SCHEDULED WATER

R	RIGHTS (OLD WATER LAW) 6. OTHER ENVIRONMENTAL RESOURCE RIGHT 7. POLLUTION RIGHTS 8. LIVESTOCK 9. OTHER RIGHTS (SPECIFY) LEASE (TEMPORARY/RENEWABLE) TO: 10. TO LAND 11. BUSINESS 12. HOUSE/BLG STRUCT 13. IRRIGATION EQUIP 14. SCHEDULED WATER USER RIGHTS 15. OTHER ENVIRONMENTAL RESOURCE RIGHT 16. POLLUTION RIGHTS 17. LIVESTOCK 18. OTHERS (SPECIFY)	RIGHTS (OLD WATER LAW) 6. OTHER ENVIRONMENTAL RESOURCE RIGHT 7. POLLUTION RIGHTS 8. LIVESTOCK 9. OTHER RIGHTS (SPECIFY) LEASE (TEMPORARY/RENEWABLE) TO: 10. TO LAND 11. BUSINESS 12. HOUSE/BLG STRUCT 13. IRRIGATION EQUIP 14. SCHEDULED WATER USER RIGHTS 15. OTHER ENVIRONMENTAL RESOURCE RIGHT 16. POLLUTION RIGHTS 17. LIVESTOCK 18. OTHERS (SPECIFY)	USER RIGHTS (OLD WATER LAW) 6. OTHER ENVIRONMENTAL RESOURCE RIGHT 7. POLLUTION RIGHTS 8. LIVESTOCK 9. OTHER RIGHTS (SPECIFY) LEASE (TEMPORARY/RENEWABLE) TO: 10. TO LAND 11. BUSINESS 12. HOUSE/BLG STRUCT 13. IRRIGATION EQUIP 14. SCHEDULED WATER USER RIGHTS 15. OTHER ENVIRONMENTAL RESOURCE RIGHT 16. POLLUTION RIGHTS 17. LIVESTOCK 18. OTHERS (SPECIFY)
1. head)			
2.			
3.			
4.			
5.			
6.			
7.			

3.4 Historical, cultural, social attachments

3.4.1	Is there a reason/s why you would never want to leave the Kat River area for good? 1 YES 2 NO 3 DON'T KNOW
1. (head)	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

3.4.2	If you answered yes (1) above, give the most important reason or explanation to why you don't want to leave the KRV
1. (head)
2.

3.
4.
5.
6.
7.
8.

4. PUBLIC PARTICIPATION

4.1 General public participation *EXCLUDE* participation in environmental resource organisations (DO NOT INCLUDE WUA, CF OR LAND CARE participation)

4.1.1	4.1.2	4.1.3	4.1.4	4.1.5	4.1.6
Hh R O S T E R N U M B E R	<u>GENERAL PUBLIC PARTICIPATION</u> DO YOU FEEL IT IS A GOOD THING FOR ONE TO BE INVOLVED IN PUBLIC MATTERS (E.G. ATTENDING COMMUNITY MEETINGS)? 1. IT IS A VERY GOOD THING TO DO 2. IT IS O.K. TO DO THAT 3. IT IS NOT A GOOD THING TO DO 4. DON'T KNOW 5. PREFER NOT TO SAY	<u>KNOWLEDGE ABOUT PUBLIC EVENTS</u> DO YOU OFTEN KNOW WHEN THERE ARE GOING TO BE COMMUNITY MEETINGS etc IN THE KRV? 1. I ALWAYS KNOW 2. SOMETIMES I KNOW 3. I AM NOT SURE 4. I NEVER KNOW 5. PREFER NOT TO SAY	<u>CULTURE OF ATTENDING PUBLIC EVENTS</u> HOW OFTEN DO YOU ATTEND PUBLIC EVENTS IN THE KRV? 1. I ALWAYS ATTEND 2. SOMETIMES I ATTEND 3. I DON'T KNOW 4. I NEVER ATTEND 5. I PREFER NOT TO SAY	<u>PUBLIC ORG. MEMBERSHIP</u> ARE YOU A MEMBER TO ANY COMMUNITY ORG IN THE KRV? 1. YES 2. I DON'T KNOW 3. NO 4. PREFER NOT TO SAY	<u>PERSONAL RESPONSIBILITY IN COMMUNITY ORGANISATION</u> DO YOU HOLD ANY COMMITTEE POSITION/S IN ANY COMMUNITY ORG? 1. YES 2. I DON'T KNOW 3. NO 4. PREFER NOT TO SAY

1. (head)					
2.					
3.					
4.					
5.					
6.					
7.					
8.					

**4.2 Public participation with reference to ENVIRONMENTAL RESOURCES
(INCLUDING WATER AND LAND RESOURCES) (E.G. WUA, CF, LAND CARE ETC)**

R O S T E R N U M B E R	4.1.1	4.1.2	4.1.3	4.1.4	4.1.5
	<u>ENVIRO- RESOURCE PUBLIC PARTICIPATION</u>	<u>KNOWLEDGE ABOUT PUBLIC RESOURCE EVENTS</u>	<u>CULTURE OF ATTENDING PUBLIC RESOURCE EVENTS</u>	<u>PUBLIC RESOURCE ORG. MEMBERSHIP (EG. LAND CARE, CF, WUA)</u>	<u>PERSONAL RESPONSIBILITY IN COMMUNITY RESOURCE ORGANISATION</u>
	DO YOU FEEL IT IS A GOOD THING FOR ONE TO BE INVOLVED IN PUBLIC RESOURCES MATTERS (E.G. ATTENDING MEETINGS)? 1. IT IS A VERY GOOD THING TO DO 2. IT IS O.K. TO DO THAT 3. IT IS NOT A GOOD THING TO DO 4. DON'T KNOW 5. PREFER NOT TO SAY	DO YOU OFTEN KNOW WHEN THERE ARE GOING TO BE COMMUNITY MEETINGS etc IN THE KRV? 1. I ALWAYS KNOW 2. SOMETIMES I KNOW 3. I AM NOT SURE 4. I NEVER KNOW 5. PREFER NOT TO SAY	HOW OFTEN DO YOU ATTEND PUBLIC EVENTS IN THE KRV? 1. I ALWAYS ATTEND 2. SOMETIMES I ATTEND 3. I DON'T KNOW 4. I NEVER ATTEND 5. I PREFER NOT TO SAY	ARE YOU A MEMBER TO ANY COMMUNITY ORG IN THE KRV? 1. YES 2. I DON'T KNOW 3. NO 4. PREFER NOT TO SAY	DO YOU HOLD ANY COMMITTEE POSITION/S IN ANY COMMUNITY ORG WITH OR WITHOUT PAY 1. YES 2. I DON'T KNOW 3. NO 4. PREFER NOT TO SAY
1. (head)					
2.					
3.					
4.					
5.					
6.					
7.					
8.					

4.3 Language issues in public meetings

Hh R O S T E R N U M B E R	4.3.1 WHAT IS THE PROCEEDING LANGUAGE USED IN THE PUBLIC MEETINGS YOU NORMALLY ATTEND? 1. MOSTLY ENGLISH 2. MOSTLY XHOSA 3. MOSTLY OTHER 4. A MIX OF LANGUAGES 5. NOT SURE 6. PREFER NOT TO SAY	4.3.2 HOW WELL DO YOU FOLLOW / UNDERSTAND THE PROCEEDINGS (CONTENT AND LANGUAGE) IN MEETINGS YOU NORMALLY ATTEND? 1. I FOLLOW VERY WELL 2. SOMETIMES I DON'T FOLLOW 3. I NEVER FOLLOW 4. NOT SURE 5. PREFER NOT TO SAY	4.3.3 HOW MUCH DO YOU THINK YOU CONTRIBUTE IN THE MEETING PROCEEDINGS YOU NORMALLY ATTEND? 1. I CONTRIBUTE A LOT 2. SOMETIMES I CONTRIBUTE 3. I NEVER CONTRIBUTE 4. NOT SURE 5. PREFER NOT TO SAY
1. (head)			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

SECTION 2

Environmental uses and values

5. 1 ENVIRONMENTAL USES (INSTRUCTION TO INTERVIEWR!-indicate all uses of each member)

Hh R O S T E R N U M B E R	5.1.1 DO YOU USE (IN ANY WAY -E.G. SPIRITUAL, HOUSEHOLD CONSUMPTION, BUSINESS) THE FOLLOWING RESOURCES 1. RIVER WATER ABSTRACTION AND RECREATION 2. GROUND WATER ABSTRACTION 3. WETLANDS (WATER ABSTRACTION AND RECREATION) 4. GRAZING PASTURE 5. FOREST WOOD HARVESTING 6. FOREST MEDICINE HARVESTING 7. FOREST FLOWERS ABSTRACTION 8. RIVER SAND ABSTRACTION 9. BUILDING STONES ABSTRACTION 10. ENVIRONMENTAL AESTHETICS APPRECIATION 11. SPIRITUAL USES: BAPTISM ETC. 12. FISHING 13. WASTE DISPOSAL 14. WASHING: PEOPLE, CARS, CLOTHES 15. OTHER USES OF ENVIRO RESOURCES (SPECIFY)

1. (head)	
2.	
3.	
4.	
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6.	
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8.	

5.2 INSTRUCTION TO THE INTERVIEWER! Read out and explain the following information to respondents

BACKGROUND ENVIRONMENTAL INFORMATION

- 1. Water is a scarce resource in South Africa.**
- 2. Prior to 1994 access to water resources were distributed unequally among water users of different economic and racial backgrounds**
- 3. Therefore in 1997 the South African government formulated a new National Water Policy (NWP) whose objectives are to protect and equally distribute water resources among all its users in a sustainable manner.**
- 4. To achieve this the government divided the country into 19 Water Management Areas (WMA) to be managed by local people in a representative way**
- 5. The management requires that licences to use water be issued to big users of water (like farmers with over 5 hectares of irrigation land).**
- 6. The Kat River Valley is in one of the 19 WMAs.**
- 7. The government needs local people to participate fully in creating a water management body and in deciding the state (quality and quantity) in which local people want the river to be maintained.**
- 8. By doing this, the government believes the KRV will be sustained for a long time and for the coming generations to use it.**

5.3. Individual environmental values for 3 aspects of the NWP

R O S T E R N U M B E R	5.2.1	5.2.2	5.2.3
	<u>WATER LICENCE</u> HOW MUCH 1. MONEY OR 2. LABOUR TIME OR 3. LIVESTOCK (INCL BIRDS) OR 4. A BAG OF: POTATOES OR CABBAGE OR OTHER (SPECIFY) OR 5. OTHER UNIT ARE YOU WILLING TO PAY/SPEND TO OBTAIN A WATER LICENCE TO USE A CUBIC METER OF WATER?	<u>RESERVE - CONSERVATION</u> HOW MUCH 1. MONEY OR 2. LABOUR TIME OR 3. LIVESTOCK (INCL BIRDS) OR 4. A BAG OF: POTATOES OR CABBAGE OR OTHER (SPECIFY) OR 5. OTHER UNIT ARE YOU WILLING TO PAY/SPEND TO PREVENT THE RIVER FROM BECOMING UNUSABLE (e.g. BECAUSE OF pollution, overuse etc.?)	<u>CATCHMENT MANAGEMENT</u> HOW MUCH 1. MONEY OR 2. LABOUR TIME OR 3. LIVESTOCK (INCL BIRDS) OR 4. A BAG OF: POTATOES OR CABBAGE OR OTHER (SPECIFY) OR 5. OTHER UNIT ARE YOU WILLING TO PAY/SPEND TO HAVE A WELL RUNNING CMA IN THE KRV?
1. (head)			
2.			
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8.			

THANK YOU FOR YOUR TIME, WE HAVE COME TO THE END OF THE INTERVIEW

WRITE DOWN THE TIME YOU FINISHED.....

Appendix 20

A technical explanation of the Lewis Two-Sector Model of development

Figure 1 illustrates the technical effects of the assumptions, which were presented in Chapter two (Section 2.4.1), on the production functions of rural and urban sectors. The graphs on the left hand side represent the urban production process with increasing capital investments and technological advances, while graphs juxtaposed on the right hand side represent the production functions of the rural sectors with zero capital investments and constant technology.

The top right diagram (C) illustrates diminishing returns to total food output (Fei and Ranis, 1964:10). In the agricultural sector, the wage rate (W_a) is determined by total product (TP) over total quantity of labour (L_a) (i.e. $W_a = TP_a/L_a$). The determination of the wage rate is also illustrated by the bottom curves on the right hand side which represent the marginal (MP) and average (AP) production functions as derived from the total production function above. Since L_a , on the horizontal axis, represents the quantity of labour for maximum food production output, the MP curve indicates that labour surplus in the rural sector exists beyond the point where marginal product equals zero. The AP curve indicates the wage level W_a at L_a where $MP=0$. Compared to the urban sector, i.e. the graphs on the left hand side, it can be seen that the agricultural wage is lower than the urban wage (i.e. $W_a < W_m$)⁹⁵, and this acts as an incentive for labour migrations out of the rural sector.

In the urban sector, diagram A illustrates upward sloping total product (TPu) curves. The TPu curves are also variable with labour inputs at different levels of technology. The increasing local investments of **capital** stock (K_m) contribute to increasing levels of technology, which in turn lead to overall growth in the sector. For instance, TPu1 output is produced by L_1 labour inputs at K_{m1} capital stock, but the increase of capital stock investments shifts the TP curves upward enabling a higher output with the same labour inputs.

⁹⁵ Lewis (1954:146) argued that rural wages set the floor and they are normally 30% lower than urban wages.

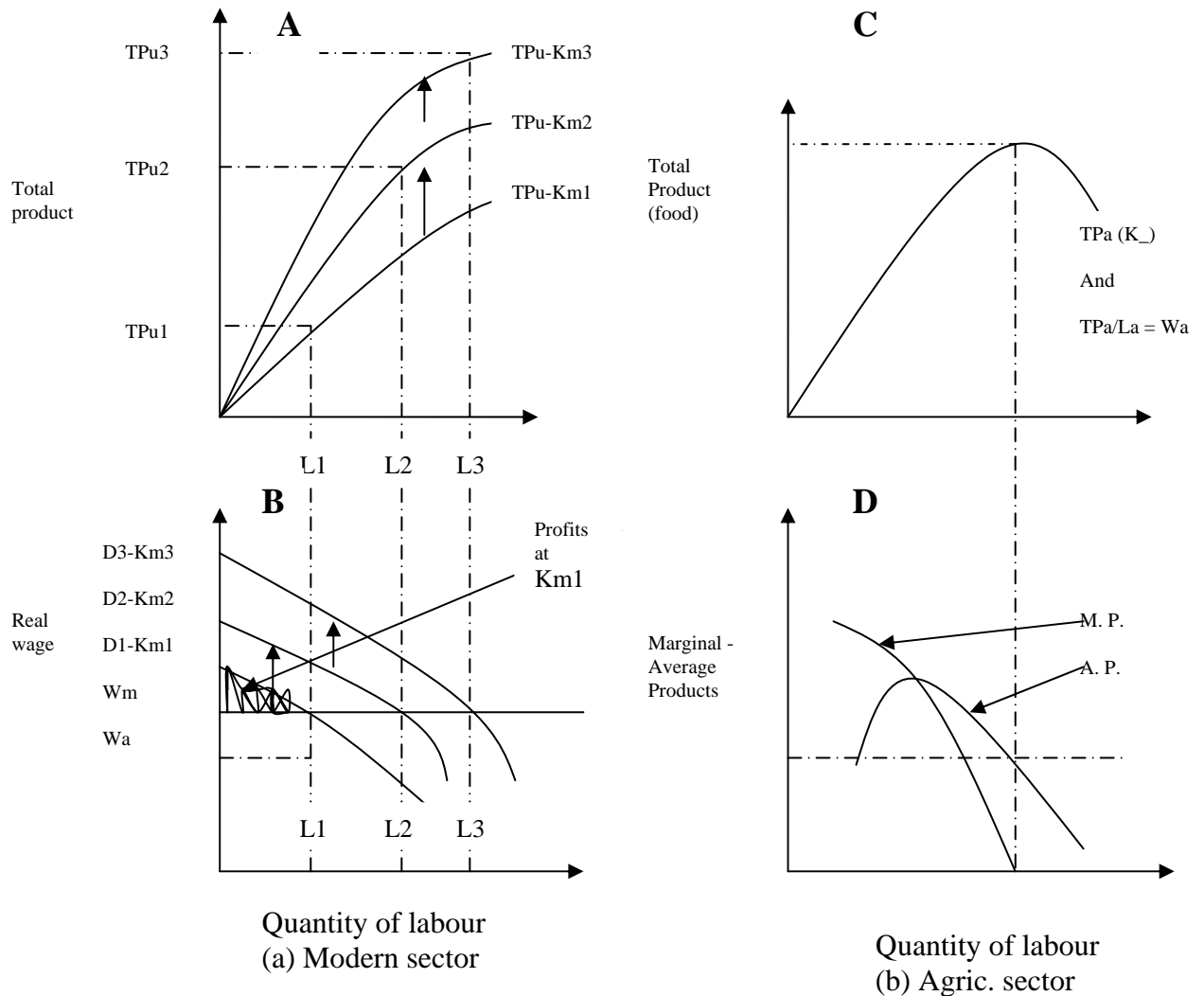


Figure 2.1 The Lewis Two Sector Model (Adapted from Todaro, 1997:77)

Diagram **B** illustrates marginal product (MP) curves as derived from the corresponding top TPu curves. These MP curves also represent sector demand (D) schedules, because of the assumption of perfectly competitive labour markets in the modern sector (Lewis, 1954:135 and Fei and Ranis, 1964:119). At the higher urban wage (Wm), the supply (S) of labour is horizontal or perfectly elastic due to the assumption of unlimited supplies from the rural sector. Therefore, for a given capital stock (e.g. $Km1$) production occurs at $MP=Wm$ (i.e. $D=S$). The total output for the whole sector, at a given stock of capital, equals the area under a corresponding demand schedule. Therefore, total profits to producers equal the area above supply curve, but below the demand curve. Hence, at $Km1$, the shaded area represents total profits. It is assumed that these profits are re-invested back into the local

economy (Lewis, 1954:147; Todaro, 1997: 78 and Fei and Ranis, 1964:19). The increase in reinvested capital ensures increases of total outputs in modern sector (i.e. from TPU1 to TPU2 or TPU3).