

**WATER ALLOCATION STUDIES:
ON EXISTING SET-ASIDE ALLOCATIONS**

Report to the
Water Research Commission

by

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WATER RESEARCH COMMISSION

WATER ALLOCATION STUDIES: ON EXISTING SET-ASIDE ALLOCATIONS

SUMMARY

Coming from an era when black South African farmers were confined to the former homeland areas, the democratic government has embarked on a programme of agricultural and water reform designed to restore the Constitutional principles of equity and justice to land and water allocation. The Department of Water Affairs and Forestry has allocated significant quantities of water for black farmers but the take-up of the allocation and conversion to farming activity has been disappointing.

This study interviewed more than forty stakeholders in the irrigated agricultural sub-sector including senior national government officials, provincial government officials, water user associations, agriculture associations and farmers to collect anecdotal evidence. The question asked was:

What is inhibiting previously disadvantaged irrigation farmers from using the water allocations that are available to them?

A limited review of the literature revealed that a considerable amount had been written about the evolution of smallholder irrigation schemes mainly started in the former homeland areas. These schemes were characterised by small plots, communal land, authoritarian or paternalistic scheme management and the absence of institutional development. Most were said to be in crisis with many reported to be out of production. No reports were found on independent black farmers and most interviewees related to these schemes. The study was obliged to base most of its conclusions on anecdotes related to these communal schemes.

Interviewees identified the reasons why the water allocations were not being taken up as:

- Irrigation is inherently a complex, high-cost, technological and business undertaking;
- Inter-departmental coordination between state role-players is weak so that support programmes are haphazard and difficult for the farmer to access;
- Government is criticized for making sound policies but not effectively implementing at farmer level; a case in point being agricultural and irrigation extension services;
- Financial support is inadequate in the high-cost irrigation sub-sector;
- Discredited historical approaches persist particularly around communal schemes;
- There is a limited supply of potential farmers who possess the high level technical, management and marketing skills needed for irrigation farming;
- Cultural factors, particularly land tenure, create a number of challenges;
- There is inadequate bulk infrastructure; and
- Institutional development is inadequate to provide a conducive environment.

If government is to establish commercially-orientated black irrigators it will need to substantially increase and simplify access to financial support mechanisms and bulk infrastructure as well as the *intangible wealth* available to farmers, being:

- Extension and research services;
- Institutional (including social) development; and
- Training opportunities in the areas of finance, management and marketing.

Government has declared several policies and strategies to address these issues but implementation is perceived as weak or non-existent. To correct this, government will need to re-emphasize the political commitment to black irrigation farmers. Departmental top managements will need to co-ordinate and lead a revitalised and re-defined inter-departmental programme for irrigated agriculture.

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Annexure: List of Interviewees

There is a separate Volume 2 containing the record of interviewees but this will not be made generally available.

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PART A: PRELIMINARY

1 INTRODUCTION

During the apartheid era, black farming was overwhelmingly confined to the homeland areas and with very few exceptions, to small communal plots. Since 1994, it has been government policy to transform the agricultural sector in order to redress black farmers for the disadvantages they suffered under the apartheid system and to promote the Constitutional principles of equity and justice. Government launched land restitution and land reform programmes with comprehensive enabling legislation. However, in the irrigation sector, progress has been disappointing.

Historically, land and water were legally linked through the riparian principle but the National Water Act of 1998 (NWA) replaced this with an administrative system of water use entitlements. The NWA has, as two of its purposes, the promotion of equitable access to water and redressing the results of past racial and gender discrimination. The Department of Water Affairs and Forestry has initiated programmes to identify water that can be allocated to black farmers and to support the farmer's use of such water. However, the take-up of the opportunities created has been very slow. This then poses the research question to be answered in this study:

What is inhibiting previously disadvantaged irrigation farmers from using the water allocations that are available to them?

It must be cautioned at the outset that unused allocations are not available at every location in the country. The northern rivers particularly are under stress. The information available to this study is that good water licence applications from black farmers have been turned down in these areas because there was just not sufficient water. In these areas, reform must await the rigorous process of compulsory licensing before re-allocations can be lawfully made in terms of the National Water Act. However, in other areas, notably those used as case studies in this work, the Department of Water Affairs and Forestry have already made significant allocations for black farmers but these have not been taken up.

2 RESEARCH METHODOLOGY

The research methodology comprised:

- a limited literature review to provide context;
- 26 interviews with 45 selected informed stakeholders (see Annexure 1 for a list); and
- collation, analysis and synthesis of the opinions expressed.

Recent practice has been to refer to "agricultural water use" to denote a concept that incorporates all forms of human initiative that increases the amount of water available to plants. The topic of this study however is allocation and licensing, which necessarily denotes the narrower concept of "irrigation". The study also does not relate to the very small-scale farmers that abstract water under Section 1 exemptions or general authorisations (National Water Act).

All of the recorded evidence on black irrigation farming has been related to communal schemes that have, almost without exception, been in the former homeland areas. Many of these have commercial objectives while few achieve them. This study attempts to focus on commercial irrigation farming that is the principle target of water allocation reform. In doing

so, it necessarily draws on the body of knowledge of communal black farming. A core assumption is that most lessons can be transferred.

Because, the research methodology of this short-term work was not particularly rigorous, it potentially suffers from the inadvertent biases of the researchers.

3 THE IRRIGATION SECTOR IN SOUTH AFRICA

The dryland and stock farming area in South Africa is constituted as:

- 82Mha is private land; and
- 16Mha is communal land

The area under irrigation in South Africa is estimated to be¹:

- 50 000 ha of food plots
- 50 000 ha of smallholder irrigation; and
- 1 300 000 to 1 400 000 ha of commercial irrigation.

Irrigation involves 40 000 to 45 000 commercial farmers the majority of whom are white males and 200 000 to 250 000 traditional subsistence farmers, the majority of whom are black women². Employment is approximately 120 000 permanent workers and an unknown number of seasonal workers³. Agricultural irrigation represents close to 60% of the total water requirements in the country while contributing less than 1,5 percent of each of the GDP and of total employment⁴. A quarter of agriculture's contribution to GDP comes from irrigation⁵. There are approximately 320 smallholder irrigation schemes in the former homeland areas⁶.

4 SOUTH AFRICAN AGRICULTURE REFORM

The **White Paper on Land Reform (1995)** responds to three Constitutional imperatives namely:

- A person or community dispossessed of property after 19 June 1913 because of past racially discriminatory laws or practices is entitled, to the extent provided by an Act of Parliament, either to restitution of that property, or to equitable redress.
- The state must take reasonable legislative and other measures, within its available resources, to foster conditions that enable citizens to gain access to land on an equitable basis.
- A person or community whose tenure of land is legally insecure because of past racially discriminatory laws or practices is entitled, to the extent provided by an Act of Parliament, either to tenure that is legally secure, or to comparable redress.

Consequently, the White Paper addresses the three themes of restitution, redistribution and tenure reform.

The **White Paper on Agriculture (1995)** sets a vision for the new agriculture in South Africa. It reflects the fact that although agricultural functions are provincialised, agriculture has a

¹ Backeberg G. Personal Communication.

² Backeberg G. Reform of user charges, market pricing and management of water: Problem or opportunity for irrigated agriculture. Irrigation and Drainage 55: 1-12. 2006.

³ Backeberg G et al. Policy proposal for irrigated agriculture in South Africa. Water Research Commission. Report No. KV 96/96. 1996. pi

⁴ Department of Water Affairs and Forestry. National Water Resources Strategy. 2003. p25.

⁵ National Department of Agriculture. Draft National guidelines for integrated management of agricultural water use. July 2002. pii.

⁶ Denison J and Manona S. Principles, Approaches and Guidelines for the Participatory Revitalisation of Smallholder Irrigation Schemes. Water Research Commission Report TT 309/07. March 2007.

national character as an integrated sector. The White Paper is a package of principles on which the broader sector can formulate strategies.

The **Broadening Access to Agriculture Thrust (BATAT)(1995)**, was the Reconstruction and Development Programme within the Department of Agriculture, and is an implementation strategy developed for the agricultural policy framework aimed at guiding and directing future budgetary resources. It produced a number of documents in the mid-1990s related to financing in the agricultural sector.

The **Strategic Plan for South African Agriculture (2001)** is the outcome of a call by the President of South Africa to AgriSA and the National African Farmers' Union to join government in drawing up a common agricultural strategy. Of relevance to this work is that in identifying sector challenges, it firstly highlights a skewed participation in the sector due to the many entry barriers that are rooted in its historical dualism and the secondly an ineffectiveness of support systems.

The response to the latter will be initiatives directed at emerging farmers that include improving market access, transfer of technology, entrepreneurial development and mentorship, rural financial services, agricultural extension and infrastructure. A focus will be on coordinating the work of government, civil society and the industry.

The vision of the **Integrated Sustainable Rural Development Strategy (ISRDS)** later revised to **Integrated Sustainable Rural Development Programme (ISDRP)(2001)** is to: *“attain socially cohesive and stable rural communities with viable institutions, sustainable economies and universal access to social amenities, able to attract and retain skilled and knowledgeable people, who equipped to contribute to growth and development”*. To achieve this vision, the ISRDS/ISDRP proposes that government leads in the consolidation, formulation, implementation, monitoring and evaluation of well-coordinated programmes and projects, which will allow for participation of all spheres of government and civil society. It represents a method of working rather than a funded programme.

The main activities of the ISDRP are:

- Focusing on existing rural development programmes by enriching and strengthening them;
- Building the institutional capacity of local structures to ensure sustainability of development work carried out;
- Providing seed funding and gearing additional resources from parastatals, the private sector, civil society and the donor community;
- Mobilising communities to become active in driving development;
- Matching the development aims of communities to available opportunities and services;
- Aligning processes of administration and governance between the national, provincial and local government spheres;
- Integrating and combining the work done by different government departments so that there is maximum impact in the selected rural nodes.

The Ministry for Provincial and Local Government is responsible for managing and coordinating the implementation of the programme. The Independent Development Trust (IDT), a public entity driving development in the country for the last ten years, has been appointed to support Government in managing the implementation of the programme. At the national level, Cabinet assigned fourteen ministers to work with their provincial and local counterparts to provide political leadership for the programme.

The **Land Redistribution for Agricultural Development sub-programme (LRAD)(2001)** contributes to the policy target of redistributing 30 per cent of agricultural land in 15 years. It is designed to provide grants to black South African citizens to access land specifically for agricultural purposes. Beneficiaries can access grants under LRAD on a sliding scale, depending on the amount of their own contribution in kind, labour, and/or cash. Other strategic objectives of the sub-programme include improving nutrition and incomes of the rural poor who want to farm on any scale, de-congesting overcrowded former homeland areas and expanding opportunities for women and young people who stay in rural areas.

Mafisa is a government intervention to spread micro-credit and saving services to economically active, poor, rural people and households, small farmers and agribusinesses. The objectives of the scheme are to contribute to stimulating the extension of financial markets and economic growth, to improve national household food security, to increase employment in the rural areas (thereby reducing migration to urban centres) and to reduce poverty and inequalities in land and enterprise ownership. The scheme focuses particularly on women, youth and the disabled.

The **Comprehensive Agricultural Support Programme (CASP)(2004)** is targeted at previously disadvantaged producers, particularly the beneficiaries of the land reform programme. The provincial governments are the implementing agents of the programme. The programme is a core focus for the Department of Agriculture and will make interventions in six priority areas:

- Information and technology management;
- Technical and advisory assistance, and regulatory services;
- Marketing and business development;
- Training and capacity building;
- On/off farm infrastructure and product inputs; and
- Financial support.

The Department of Agriculture's Annual Report for 2005/06 states that 89 000 beneficiaries were assisted under the programme. However, the report also notes that farmer support and advisory services have not kept pace with the disbursement of land grants.

The **National LandCare Programme** is essentially a concept involving a process of participation that focuses on land resource management through the promotion of sustainable use practices. LandCare involves 'local people taking local action in their local area' to achieve sustainable land use and management. The Department of Agriculture supports the process in three ways:

- Through public spending, including both capital spending and reorienting staff resources and programmes towards conservation objectives;
- Through the design of incentive policies, and the removal of disincentives; and
- Through regulation and legislation.

The objectives of **AgriBEE (2005)** are to facilitate broad-based black economic empowerment in the agricultural sector by implementing initiatives to include black South Africans at all levels of agricultural activity and enterprises along the entire agricultural value chain by:

- Promoting equitable access and participation of Black people in the entire agricultural value chain;
- De-racialising land and enterprise ownership, control, skilled occupations and management of existing and new agricultural enterprise;
- Unlocking the full entrepreneurial skills and potential of Black people in the sector;

- Facilitating structural changes in agricultural support systems and development initiatives to assist Black South Africans in owning, establishing, participating in and running agricultural enterprises;
- Socially uplifting and restoring the dignity of Black South Africans within the sector;
- Increasing the extent to which communities, workers, co-operatives and other collective enterprises own and manage existing and new agricultural enterprises, increasing their access to economic activities, infrastructure and skills training;
- Increasing the extent to which Black women, people living with disabilities and youth own and manage existing and new agricultural enterprises, increasing their access to economic activities, infrastructure and skills training
- Empowering rural and local communities to have access to agricultural economic activities, land, agricultural infrastructure, ownership and skills.

5 AGRICULTURAL WATER REFORM

The reform of the water sector commenced with a **water law** review during the mid-1990s. This yielded the Water Services Act of 1997 and the National Water Act of 1998. This legislation departed fundamentally from the Water Act of 1965. The most important reform from the point of view of this study was that the system of water allocation was to be driven by the Constitutional principles of equity and justice in a rights-based society. The legislation provided for a number of mechanisms that would progressively devolve resource management to the catchment level. These included new institutions in catchment management agencies and catchment management plans. The National Water Resource Strategy was established in terms of the NWA and the Strategic Framework for Water Services guides the services sub-sector. The new order continues to unfold but a description is beyond the scope of this study.

The **National Water Policy** of 1997 recognised that irrigated agriculture was an important contributor to the economy and that it supported many rural communities. At the same time, access to water for use in agriculture was even more skewed than access to land.

In 2002, **guidelines for agricultural water use** were published⁷. A two-fold, stepped objective was identified for the revitalisation of the agricultural water use sector:

- improved food security through own production ('food first'); and
- mainstreaming historically disadvantaged farmers in the local, national and international economy through active support for business and market development.

The Guidelines are based on four key principles:

- *"In the realm of **equity**, recognition is given to the systematic and protracted historical exclusion of African farmers from the bulk of national agricultural production, out of which follows a current need to 'mainstream the marginalised'. In practice this means enhancing the access of the poor to key resources such as land, water, infrastructure, training, inputs and markets;*
- *In the realm of **governance**, recognition is given to the fact that support for agricultural development has been fragmented and diffuse rather than integrated and programmatic. 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. Acting within the confines of their mandates, line departments cannot provide more than a portion of the requirements for upliftment.*
- *In the realm of **competitiveness**, a history of state-subsidised support for agriculture in combination with a lack of skills training in production, financial management and*

⁷ National Department of Agriculture. National guidelines for integrated management of agricultural water use. July 2002.

marketing have produced a dependent and generally uncompetitive small-scale agricultural water use sector.

- *In the realm of **sustainability**, potential pitfalls such as supply-driven delivery, inappropriate financing mechanisms, inappropriate technology and insufficient attention for capacity building can constitute a threat to the long-term success of agricultural development initiatives”.*

The Guidelines state that the Department of Agriculture will take the lead in integrating initiatives in the agricultural water use sector. To this end, the NDA would launch a major national initiative under the WaterCare programme to mainstream the marginalised through comprehensive and targeted support for agricultural water use activities. The policy and actions deemed required for implementation were:

- The provincial Irrigation Action Committees (IACs) or similar existing provincial structures will be transformed into Coordinating Committees for Agricultural Water (CCAWs);
- Consistent government policy will be declared for agricultural water use projects;
- Local government capacity and private sector service provision to smallholder agriculture will be actively built in the IRDP priority nodes;
- Training, credit and markets for high quality produce will be available to all interested small-scale agricultural water users;
- In addition to support for groups, individual farmer initiative will be stimulated, especially among women and youth;
- Land on irrigation schemes in communal areas will be redistributed in a phased manner to enhance sustainable use of a scarce resource – irrigation infrastructure;
- The implementation of this policy will be resourced sustainably; and
- Policy outcomes will be monitored and policy refined over time.

The Guidelines go on to outline detailed actions that will be required if the objectives are to be met.

There seems to be some doubt around the status of the Guidelines. They appear on the DWAF website but not on that of the NDA. Although the publishing authority is listed as the NDA in collaboration with other departments and stakeholders, this writer was informed that in fact a consultant prepared the Guidelines under the direction of DWAF. Certainly, during the course of the interviews for this study, the interviewees did not mention the guidelines.

At the time of writing this report, the NDA was in the process of preparing a **policy on agricultural water use**. Since future policy direction does not influence the reflective nature of this study, it was not reviewed.

On 12 April 2005, the Minister of Water Affairs and Forestry, launched the **Water Allocation Reform Strategy**. The Minister said “*We will continue to strive to help our people along the journey from being small subsistence water users to, if they so wish, large commercial, productive and competitive users not just in South Africa but internationally*”⁸. The proposals included methods to:

- *“Take proactive steps to meet the water needs of historically disadvantaged individuals, women and the poor;*
- *Ensure participation by these groups;*
- *Establish partnerships to build capacity to use water productively because it is not enough to give access to water and expect poor people to prosper if they do not have the land, the start-up capital or the skills to grow products or to access markets; and*

⁸ Minister of Water Affairs and Forestry. Opening Speech at the National Consultative Workshop on Water Allocation Reform in South Africa. CSIR Conference Centre, Pretoria. 12 April 2005.

- *Through all this, to promote the sustainable, efficient and beneficial use of water in the public interest⁹.*

The Department of Water Affairs and Forestry published a draft position paper⁹ for comment. It proposed the following guidelines:

- *A primary focus of water allocation processes will be to redress past imbalances in water allocations to Historically Disadvantaged Individuals (HDI).*
- *The water allocations process must be supported by capacity development programmes that support the use of water to improve livelihoods and to support the productive and responsible use of water by all users. These capacity development programmes should also help HDI and the poor to participate equitably in the process of informing the allocation of water.*
- *The water allocations process will contribute to Broad-Based Black Economic Empowerment (BBBEE) and gender equity by facilitating access by black- and women-owned enterprises to water.*
- *The water allocations process will respond to local, provincial and national planning initiatives, as well as to South Africa's international obligations and regional SADC initiatives.*
- *The water allocation process will be undertaken in a fair, reasonable and consistent manner and existing lawful uses will not be arbitrarily curtailed.*
- *The water allocations process will give effect to the protection of water resources as outlined in the National Water Act by promoting the phased attainment of both developmental and environmental objectives; and*
- *Innovative mechanisms that reduce the administrative burden of authorising water use, while still supporting its productive use, as well as the effective management and protection of water resources will be developed.*

In support of the initiative, a "Toolkit"¹⁰ was in preparation at the time of this study. The Toolkit largely addresses the administrative function of the regional offices of the DWAF. These are the procedures by which water allocations can be identified and made in support of the water allocation reform process. The Toolkit also contains supporting literature on matters such as *Small-scale farmer development in the context of water reform* and *Economic considerations in water allocation*. There is an acknowledgement that in promoting applications from historically disadvantaged individuals, many of the necessary support mechanisms lie outside the mandate of the DWAF. The regional offices are then to promote cooperative government initiatives. While alerting the user to the complexity of supporting irrigation farming, the detail of requirements and methods is beyond the scope of the Toolkit.

Neither the water allocation reform strategy nor the Toolkit had been finalised at the time of writing of this report.

6 LEGISLATIVE PROVISIONS

6.1 Use of Water under the National Water Act (36 of 1998) (NWA)

The NWA defines a "water use" broadly to include abstraction, storage, discharge to watercourses, re-alignment of watercourses, etc. This paper focuses on abstraction for irrigation.

⁹ Department of Water Affairs and Forestry. Draft position paper for water allocation reform in South Africa: Towards a framework for water allocation planning: Discussion document. January 2005.

¹⁰ Department of Water Affairs and Forestry. DRAFT Toolkit for water allocation reform: A manual to help achieve race and gender equity in water allocations. January 2007.

In section 4, the NWA provides four bases on which a person is entitled to use water (in this case abstraction for irrigation) . These are:

- The continuance of a lawful use, subject to certain conditions, that existed at the time of coming into force of the Act. Over a transition period, this entitlement will have to be converted to one of the other bases. This type of use is not considered further in this paper;
- Any of the uses in Schedule 1 (relatively minor uses);
- Uses that fall under a general authorisation (smaller uses in non-water stressed areas); and
- Those uses in respect of which a licence has been issued.

Schedule 1 to the NWA, entitles any person (with some practical limitations) to take water for:

- (i) reasonable domestic use;
- (ii) small gardening not for commercial purposes; and
- (iii) the watering of animals (must be reasonable in relation to the resource).

This provision is clearly intended to permit every rural household to abstract sufficient water for its dignity and food security needs. The equity principle obviously limits any entitlement relative to the similar needs of other users dependent on the resource. There has been conjecture about what is “reasonable” and what is “commercial” but this writer is of the view that the objectives of the Act indicate that these terms should be interpreted widely. Note that these uses do not have to be registered.

A **general authorisation** was issued on 26 March 2004, in terms of section 39 of the NWA. This allows lawful occupiers of land to abstract and store a limited quantity of surface and groundwater from watercourses or aquifers in areas that are not designated in the regulations.

Whether or not the authorisation applies at a particular place requires careful scrutiny of the conditions and several tables in the Regulations and this detail is beyond the scope of this note. By way of illustration the generally authorised abstraction for irrigation from surface waters is a maximum flow of 15l/s with an annual limit of 150 000m³ (about enough for 15 ha) Most of the northern rivers and all of the Limpopo and Olifants Rivers are excluded. The authorised abstraction from groundwater takes the form of categorising the quaternary catchments into five “zones” where abstraction rates of 0, 45, 75, 150 and 400 m³/ha are authorised. Again, the northern river basins have zero or low authorisations. The Regulations make a distinction for small industrial use (defined as abstracting less than 20m³/day). Note that the general authorisations are for five years and that any use must be registered.

A responsible authority (DWAF or when established and so delegated a catchment management agency) assesses **licence** applications in terms of criteria that are set in section 27. The DWAF has developed explanatory documentation, guidelines and procedures for this purpose. In Part 8 of Chapter 4, the Act also makes provision for the responsible authority to use a compulsory licensing process in any area where it deems this necessary. The compulsory licensing process is however, complex and its use is therefore limited by the availability of human capacity.

6.2 The Allocation Concept in the NWA

The NWA uses the term “allocation” as a precursor to having an entitlement to use water in terms of section 4 (licence, authorisation, Schedule 1 and pre-existing lawful use). It is a mechanism of achieving the purposes of the NWA as expressed in section 2. So for example, the Preamble acknowledges “*the National Government's overall responsibility for and authority over the nation's water resources and their use, including the equitable*

allocation of water for beneficial use,". Moreover, in section 2 that sets out the public trustee principle, "the Minister is ultimately responsible to ensure that water is **allocated** equitably and used beneficially in the public interest, while promoting environmental values".

However, the practical side of allocation manifests in two ways namely:

- A catchment management strategy must contain **water allocation plans** (section 9(e)); and
- A responsible authority undertaking a compulsory licensing process is required to prepare proposed, preliminary and final, **water allocation schedules** (sections 43 to 48).

Other references to allocation empower the Minister to:

- make a determination of the amount of water for which a responsible authority may issue general authorisations or licences (Section 23) ("allocation" is mentioned in the header but not in the section proper);
- make regulations pertaining to methods for volumetric determination related to stream flow reduction activities for purposes of water use **allocation** and for prescribing procedures for the **allocation** of water by means of public tender or auction (Section 26); and
- establish a pricing strategy for charges for, *inter alia*, achieving the equitable and efficient **allocation** of water (Section 112(1)).

A first point to note is that Section 27 that sets out the criteria for issuing a general authorisation or licence does not explicitly mention "allocation" in any form as a criterion. It does however list, as a criterion, the catchment strategy, which must have an allocation plan. A cynical interpretation of the NWA may find that the allocation and licensing processes are distinct. However, the compulsory licensing procedure has allocation schedules as a central element. It is not necessary to pursue this technical point in the present endeavour as "equity" and "redress", the principal drivers of empowering emerging irrigators, are key principles in all of allocation, authorisation and licensing.

A second point is that all references to "allocation" in the NWA relate to structured procedures. The question inevitably arises then whether the Minister (or responsible authority) can lawfully make an "allocation" or issue a licence for that matter, without there being an administrative process that demonstrates that he/she has applied his/her mind to the question in pursuit of the Constitutional principle of administrative justice.

7 BRIEF LITERATURE REVIEW

Black farming is in a process of transition from being essentially confined to the homeland areas fifteen years ago to the opportunities of today offered by land and agricultural reform. Irrigation farming is one part of this but undoubtedly the most capital intensive and technically demanding. This section seeks to draw on the reports emanating from several initiatives over the last few years.

The objective of this review is to provide some context to the collection of anecdotal evidence and opinion assembled during this assignment. The history of black farmers, using water for agricultural purposes, is inextricably linked to the schemes that were developed in the previous homeland areas. The entitlement to use water on these schemes derives from the administrative processes between the then homeland governments and the South African government and is sustained by the existing lawful use provisions in the National Water Act. These long-standing allocations are distinct from new allocations that are the topic of this study. As can be expected, in recent times, that which has been researched and written about black irrigation farmers has been about these schemes. Most of the writing has been about why smallholder irrigation schemes continue to deliver poor performance and what policy changes can be made to correct this. This research did not identify any literature on

independent black farmers. The question of why black farmers are not taking up the new allocations of water made to them must be considered parallel to the quest for successful approaches to the ex-homeland schemes. It is appropriate therefore in this review to consider some of the work done on these schemes while acknowledging that while the two questions are closely linked, they are not the same.

This study is concerned with the topic of water allocations and consequently with irrigation. It does not embrace the emerging international concept of “agricultural water use” that includes all forms of human initiative to increase the water available to plants.

7.1 Tracing the History

Following the prior work of Bruwer and Van Heerden¹¹ and of Backeberg and Groenewald¹², Van Averbeké and Mohammed¹³, postulate that smallholder irrigation schemes have gone through four eras, which they emphasise, are aligned with the political history of the country. The eras are briefly:

- The peasant and mission diversion scheme era that started in the 19th century and was associated with mission activity and the emergence of African peasantry;
- The smallholder canal scheme era lasting from 1930 until about 1960 that was primarily aimed at providing African families residing in the “Bantu Areas” with a full livelihood. Schemes were characterised by:
 - diversion structures sometimes with storage and canals to the field edge;
 - Small plot sizes
 - Authoritarian and paternalistic management; and
 - The powers to dispossess underperforming farmers.
- The independent homeland era lasted from about 1970 until 1990. It was characterised by modernisation, functional diversification and centralisation of scheme management. Schemes were complex and costly to operate and were consequently managed by parastatals. They created a high level of dependence in the farmers so that when the parastatals were dismantled after 1994, partial or total collapse of production followed almost immediately; and
- The irrigation management transfer (IMT) and revitalisation era commenced in 1990. Initially the poverty focus of the Reconstruction and Development Programme guided scheme management and development. Later, with the Growth, Employment and Redistribution Programme, existing irrigation schemes were identified as important resources for economic development, but they first required revitalisation. Concurrently, government adopted a strategy of irrigation management transfer that refers to the transfer of the responsibility of managing, operating and maintaining irrigation schemes from the state to farmers.

Tlou et al¹⁴ provide a typology of the small-scale irrigation schemes that existed at the end of the apartheid era (see box). They support van Averbeké’s contention (above) that the situation reflected the origins and evolution of the schemes in a paradigm that persists in terms of expectations and solutions. Many of the current problems derive directly from historical policies and many schemes are struggling to come to grips with the new reality.

¹¹ Bruwer J and van Heerden P. *Spotlights on irrigation development in RSA: the past, present and future*. In: Southern African irrigation symposium, Durban, 4-6 June 1995. WRC Report No. TT 71/95. Proceedings. Water Research Commission, Pretoria. 3-10.

¹² Backeberg GR and Groenewald JA. *Lessons from the economic of irrigation development for smallholder settlement in South Africa*. Agrekon 34 (3)167-171. (1995).

¹³ W Van Averbeké & SS Mohamed. Smallholder Irrigation Schemes in South Africa: Past, Present and Future. Keynote Address. SANCID Conference. December 2006.

¹⁴ Tlou T, Mosaka D, Perret S, Mullins D and Williams CJ. Investigation of different farm tenure systems and support structure for establishing small-scale irrigation farmers in long-term viable conditions. Water Research Commission Report No. 1353/1/06. 2006.

BOX: TLOU et al.'s TYPOLOGY OF THE SMALL-SCALE IRRIGATION SCHEMES THAT EXISTED AT THE END OF THE APARTHEID ERA

- *Bureaucratically managed small-scale schemes, partly or fully administered formerly by the government or its agencies (corporations) which carried out most farming operations on behalf of farmers. Most of the existing small-scale irrigation schemes conform in varying degrees to this category. Such schemes have high recurrent costs and are usually a large financial burden on the State; their usual aim is to help farmers produce their own food and possibly a surplus for sale;*
- *Community schemes or garden schemes, which are numerous but usually very small and supported at the outset by NGOs, development projects or government departments. After several years, many of them collapse due to lack of maintenance and the unavailability of the management skills and capacity requirements in the communities. Some of them remain operational and are maintained by community users or their representatives. Subsistence is the major objective underlying such schemes;*
- *Several State or corporation financed schemes (such as sugar cane) for which government provides infrastructure down to farm gates. Farmers pay a subsidized tariff for the irrigation water and make most farming and management decisions. Such schemes are rare in South Africa;*
- *Several large estate schemes, which are State or private sector financed, often managed by agents whose aim is to maximize the use of resources through production of high return cash crops (e.g. tea, coffee, fruit, etc.). There is generally little farmer participation, farmers being more supervised farm-workers than decision-makers.*

7.2 Farmer Support Programmes

During the homeland era, the Development Bank of Southern Africa identified a number of failings in the then development paradigm for agriculture and rural development. These included high cost, low productivity, lack of participation in important operational decisions by farmers, lack of attention to social upliftment, poverty abatement and welfare in general. The lack of commercial agriculture in the homelands was often incorrectly attributed to lack of entrepreneurial and managerial ability among black farmers. The DBSA concluded that at the core of the poor performance of farming was a lack of access to agricultural support services. In response, and citing successful parallels in Zimbabwe, Kenya and Malawi, the DBSA, adopted a "farmer support programme", (FSP) approach with the objectives of spreading the effects of agricultural projects to a larger number of farmers, increasing production and making farming more efficient¹⁵. (Note that the FSP included all farming modes and not specifically irrigation.) The FSP initially promoted a move away from subsistence farming towards commercial farming. Realisation that most smallholders employed several income strategies this structural change was later de-emphasised. Other policy aspects were to integrate farming with other rural development activities and that investment in agriculture was to be the main driver. Access to land and production rights there on were a pre-requisite. Ready access to the following support services was to be provided:

- Production inputs and capital;
- Mechanisation;

¹⁵ Singini R and van Rooyen J. (eds) *Serving small-scale farmers: An evaluation of the DBSA's farmer support programme*. Development Bank of Southern Africa. 1995.

- Marketing;
- Extension, demonstration and research;
- Training;
- Bulk infrastructure; and
- Identification and targeting of suitable areas.

The FSPs were criticised from a social and institutional point of view because in promoting change in the rural economy they assumed a change in the “social organisation of the farm household production system; in attitudes, values, and behaviours of farmers; and in the objectives of farmers and their households towards surplus agricultural production”.¹⁶ While the FSPs achieved many successes, the provision of the key services depended on the agricultural corporations of the homeland governments and when these were dismantled after 1994, the approach lost its driving force and on the many schemes that were unable to fill the void, production reduced drastically or collapsed^{17,18}.

7.3 Irrigated agriculture policy proposals

In 1996, as support to the water law reform process, the WRC published a report that contained policy proposals for transforming irrigated agriculture. This report dealt in part with the topic of small-scale irrigation farming stating¹⁹:

“Research has shown that in South Africa and Africa as a whole, small-scale farmer irrigation schemes are beset by varying combinations of problems. These include scheme management, project planning and design, security of tenure, size of units, farmer participation, water management, debt load, pricing policies, marketing, inputs, extension and research services, as well as mechanical and other support services.”

The policy proposals for small-scale farmer irrigation schemes included a focus on co-operative government, the responsibilities of several government departments and the formation of multi-disciplinary task teams to further investigate and operationalise the proposals. Aspects included a training and extension programme, devolution of responsibility and increased responsibility of rural communities, capacity building in water user associations, development of irrigation, social and economic infrastructure, technology, increased support in extension inputs, credit, marketing, storage facilities and project management, multi-disciplinary approaches and objective farmer selection.

7.4 Early proposals for rehabilitating existing schemes.

During 1999 and 2000, WRC funded a study²⁰ directed at rehabilitating small-scale irrigation schemes. An overall review of small-scale farmer irrigation schemes in the Eastern Cape, KwaZulu-Natal and Limpopo Provinces together with a detailed investigation of four schemes, concluded that, with the exception of sugar cane schemes, many of South Africa’s small-scale irrigation schemes were in a state of crisis. In general terms, this was attributed to a lack of funding, poor management and maintenance of infrastructure and inappropriate organisation. Specific common problems identified included small plot sizes, high energy

¹⁶ Thomas JA and Tyobeka J *Social and Institutional considerations*. In Singini R and van Rooyen J. (eds) *Serving small-scale farmers: An evaluation of the DBSA’s farmer support programme*. Development Bank of Southern Africa. 1995. p174.

¹⁷ Tlou T, Mosaka D, Perret S, Mullins D and Williams CJ. Investigation of different farm tenure systems and support structure for establishing small-scale irrigation farmers in long-term viable conditions. Water Research Commission Report No. 1353/1/06. 2006. p10.

¹⁸ Bembridge TJ Guidelines for rehabilitation of small-scale farmer irrigation schemes in South Africa. Water Research Commission. Report No. 891/1/00. 2000. p132.

¹⁹ Backeberg G et al. Policy proposal for irrigated agriculture in South Africa. Water Research Commission. Report No. KV 96/96. 1996. p55.

²⁰ Bembridge TJ Guidelines for rehabilitation of small-scale farmer irrigation schemes in South Africa. Water Research Commission. Report No. 891/1/00. 2000. p132.

costs, marginal soils, drainage, water quality, poor infrastructure, high proportion of household heads above 60 years of age, illiteracy, local and political conflicts, weak local organisation and joint initiative for the scheme as a whole and low savings and hence resource levels. The study reported general dissatisfaction of farmers with scheme management, lack of participation in key decision-making and institutional support services including extension, training, research, markets, credit, farm inputs, mechanisation services and land tenure.

The research proposed a comprehensive approach to rehabilitation that is based on a thorough diagnostic analysis of individual schemes. This must be directed at integration between technology, management, participants and the socio-economic situation. A checklist (see table) supported by guidelines was provided.

A CHECK LIST OF GUIDELINES FOR REHABILITATING AND MODERNISING SMALL-SCALE FARMER IRRIGATION SCHEMES	
FACTOR	REMARKS
1. SOCIO-ECONOMIC 1.1 Farmer characteristics 1.2 Age – marital status 1.3 Education – literacy 1.4 Managerial ability – experience 1.5 Gender issues 1.6 Health 1.7 Labour 1.8 Perceptions 1.8 Perceptions 1.9 Land ownership/tenure	Personal, socio-economic and socio-psychological Encourage youth; female headed disadvantaged Functional literacy and numeracy Management training Role of women in irrigation Water borne and nutritional diseases Availability of labour Rehabilitation needs Security of tenure – negotiability of land rights
2. ENVIRONMENTAL ASPECTS	Water pollution, soil erosion
3. TOPOGRAPHY AND SOILS	Soil survey – marginal soils
4. AGRICULTURE 4.1 Land-use, farming systems 4.2 Climate 4.3 Constraints	Present and potential farming systems and production Suitability for crops and vegetables Assess production constraints
5. MARKETING	Present and potential markets
6. WATER SUPPLIES	Reliability_ and quality
7. IRRIGATION INFRASTRUCTURE	Suitability and costs
8. ECONOMIC INDICATORS	
9. SCHEME REHABILITATION OPERATION AND MAINTENANCE 9.1 Farmer participation 9.2 Water Users' Associations 9.3 Upgrading infrastructure 9.4 Operation and maintenance 9.5 Credit availability 9.6 Inputs 9.7 Mechanisation 9.8 Farmer training 9.9 Research	Participation in management, operation and maintenance Guidelines for formation of WUAs Costs and suitability Community participation Selective credit Availability Mechanisation services, draught power Extension and training On farm research
Source: Bembridge TJ, Guidelines for rehabilitation of small-scale farmer irrigation schemes in South Africa. Water Research Commission. Report No. 891/1/00. 2000.	

Around the same time that the above-mentioned research was published, another WRC-funded project produced guidelines and checklists for trainers and development facilitators working on irrigation with the rural poor²¹.

²¹ De Lange M, Adendorff J and Crosby CT. Developing Small-scale farmer irrigation in poor rural communities: Guidelines and checklists for trainers and development facilitators. Water Research Commission Report No. 774/1/00. 2000.

The socio-economic factors that constrain or enhance irrigation in two examples of black community garden schemes has been studied²². The chosen case studies emerged from the initiatives of individuals or a couple of individuals and the researchers conclude that the decision to commence irrigation was not based on a planned strategy but was merely maximising the options available to sustain livelihoods. *“However the demand for irrigation for **commercial** purposes is not simple to ascertain because the aspirations of communities are buried beneath a mound of socio-economic difficulties.”* Moreover, *“It can therefore not be assumed that upgrade of schemes would automatically favour the development of the economic objective.”* The research identified a number of socio-economic factors that may depress the ability of the black communities to evolve from the “household production” model to commercial irrigation. These included, (some of which may be scheme specific):

- Lack of consensus around social, economic and production goals among farmers and initiators;
- Inadequate consideration of the complex farming and livelihood systems;
- The orientation of participants derived from the history of the scheme;
- Power relationships related to access to suitable land;
- Inexperience in irrigation leads to distrust and restricts social organisation;
- High cost and risk limits sustainability;
- Proximity of markets and associated transport costs;
- Access to such markets because of poor information and transaction cost for smaller producers;
- The predominant levels of education do not offer much leverage for farmers to operate in complex agricultural production systems;
- Lack of gender sensitivity;
- Sophistication of irrigation technology in operation, maintenance and energy requirements; and
- Non-existent or low management levels and skills.

7.5 Recent research on rehabilitating existing schemes

Tlou *et al.*²³ have reported on the impact of farm tenure systems and support structures. The latter include finance, production and marketing, irrigation, institutional and organisational and social issues. The work is based on intensive study of two selected case studies in the Eastern Cape being Zanyokwe and Mngazi. The study uses a system-on-system matrix to rank the impacts of various systems (see box). The Researchers find that land tenure, finance, institutions and organisations and social issues play large roles in the on-going viability of small-scale irrigation schemes. The impact of individual factors are however site-specific.

²² Mwanyama O. (iSineke (Pty) Ltd.) Potential of sustainable irrigation in black developing communities. Water Research Commission Report No1138/1/04. 2004.

²³ Tlou T, Mosaka D, Perret S, Mullins D and Williams CJ. Investigation of different farm tenure systems and support structure for establishing small-scale irrigation farmers in long-term viable conditions. Water Research Commission Report No. 1353/1/06. 2006.

BOX: TLOU et al: SUMMARY MATRIX OF SYSTEM ON SYSTEM IMPACTS									
	Land tenure	Production	Marketing	Irrigation	Financing	Institutional	Social	ALL	Definitions
Land tenure		2	1	1	3	1	3	11	Freehold, quitrent, communal, trust, leased
Production	0		2	1	1	0	1	5	Quantity and quality of output, crop selection
Marketing	0	1		0	1	1	0	3	Effectiveness in reaching markets
Irrigation	1	3	0		0	1	0	5	Adequate water, appropriate irrigation
Financing	1	3	1	2		0	0	7	Access and effective management
Institutional	2	0	1	0	2		2	7	WUAs, CMAs, CPAs, Acts, management
Social	2	2	1	0	2	1		8	Community attitudes, skills bases, training
ALL	6	11	6	4	9	4	6	46	
Note: All impacts are row upon column									
0= No impact, 3= Significant impact									

A comprehensive set of guidelines have been published for the planning and implementation of revitalisation initiatives on smallholder irrigation schemes²⁴. This work is also useful, with adaptation in considering, the nature of support mechanisms needed for the establishment of independent irrigation farmers. In a first part, this work includes the compilation of a database mainly of former homeland schemes but also of more recent schemes instituted as part of the land reform programme. In the second part, it compares South African and international revitalisation approaches in an attempt to draw conclusions on the relative success and usefulness of a range of approaches leading to success and failure factors.

The **success factors** are identified to be:

Multi-sectoral interventions

- *Comprehensive intervention strategies which address all aspects of the irrigation farming enterprise are more likely to succeed;*
- *The interventions, which invested heavily (almost equally) in human capital, institutional elements and infrastructure have higher success rates;*
- *Market development and information supply are pivotal to success, in addition to irrigation technology;*
- *A "lift strategy" which addresses the multiple constraints to profitable production must be formulated;*
- *Complexity and marginal advantage of site-specific factors must be maximised;*
- *Close interaction between discipline experts and local farmers is therefore critical;*
- *Land consolidation initiatives in support of individual farmer expansion or group consolidation for partnership in joint ventures with agri-business;*

Participation and ownership

- *Interventions where farmers initiate the process (demand-driven) as opposed to the agency initiating the process (supply driven) have better outcomes;*
- *Interventions with a high level of farmer involvement and participation perform better;*

²⁴ Denison J and Manona S. *Principles, approaches and guidelines for the participatory revitalisation of smallholder irrigation schemes*. Water Research Commission Report TT 309/07 (in two volumes) 2007.

- *Ownership of infrastructure and equipment is centrally important to success and is linked to decision-making on project content;*

Planning considerations and livelihoods

- *Project irrigation water supply must be based on broader catchment planning as well as legal authorisations;*
- *Use existing institutions as far as possible to maximise stability and minimise farmer transaction costs;*
- *Farmer's time and financial commitment to running the scheme must be minimised;*
- *To achieve success the irrigation intervention must target significant improvement in most farmers' life situations (livelihoods, financial feasibility and profitability);*
- *Irrigation is part of a wider set of livelihood strategies and interventions must consider off-scheme and non-agricultural linkages; and*
- *Integrated Water Resource Management must be the framework within which a livelihoods-based approach to irrigation planning takes place. The basin level power imbalances can only then be addressed.*

The **failure factors** are identified to be:

- *Engineering and infrastructure development initiatives alone (bulk water and in-field irrigation systems) are destined to failure;*
- *Routine, unskilled or vague use of participatory rapid appraisal methodologies, without time consuming (and costly) engagement are unlikely to achieve sensible outcomes; and*
- *Investment decisions and financial feasibility evaluations based on optimistic yield projects will not be reflected in reality and will result in financial failure of the project.*

The authors contend that there are four farming “styles” namely:

- The **Business Farmer** who is commercially orientated and farms on larger areas or with high value crops intended for the market;
- The **Equity Labourer** who participates in a large-scale commercial partnership, joint venture or share-cropping;
- The **Smallholder** who is involved in lower risk farming, diversified livelihoods and a smaller farm; and
- The **Food Producer** who works in intensive gardens with rainwater harvesting and is not part of a scheme.

This typology aligns with the model proposed by Tlou et al²⁵. In this model, to become a commercial farmer-type, the other types must go through a process of “intensification” which implies the use of techniques (and technology) to increase the output from a given size of land or one of “extensification” which implies the use of more land to increase output and productivity. Some may need to pass through both. Both processes require considerable inputs of the factors of production including finance, training, etc.

7.6 An international perspective

Most of the South African work has been based on community schemes where the implicit assumption is that communities exhibit solidarity and are homogeneous and cohesive and willing to work collectively for the common good. Bruns²⁶ however regards such assumptions as simplistic, idealistic, romantic or ideological. According to Bruns, factors that constrain the

²⁵ Tlou T, Mosaka D, Perret S, Mullins D and Williams CJ. Investigation of different farm tenure systems and support structure for establishing small-scale irrigation farmers in long-term viable conditions. Water Research Commission Report No. 1353/1/06. 2006. p167.

²⁶ Bruns B. *Community-based principles for negotiating water rights: some conjectures on assumptions and priorities*. International workshop on ‘African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa’, 26-28 January 2005, Johannesburg.

applicability of community-based approaches, to natural resources management in general and water allocation in particular, are (shortened and paraphrased):

- **Conflict.** The management of water loses its technical nature and becomes a political issue characterised by struggles between competing groups and users;
- **Heterogeneity.** Gender, age, wealth and similar differentiate communities.
- **Asymmetry.** Differences in knowledge, wealth, and power often (but not always) place communities at a disadvantage in negotiating with outsiders.
- **Inequity.** What helps people who are generally poor by national standards does not necessarily do much for those who are the poorest within communities.
- **Dis-incentives.** Participation imposes substantial transactions costs, particularly for the poor, and may not be worthwhile for participants, not just due to problems in organizing collective action but also due to the risks of manipulated and meaningless participation, and policies that transfer responsibility without authority.
- **Context.** The complexity of local resource characteristics, social relationships, external linkages, and other circumstances condition the impact of interventions, making them prone to fail unless customized to context. Uniform implementation and outcomes are unlikely.

PART B: THE CASE STUDIES

8 DATA COLLECTION

In order to provide some direction and scope to the research, the Terms of Reference identified five case studies where the DWAF had made an allocation of water to black farmers. These were Mhlathuze (2000 ha), Uhluhluwe (1000 ha), Blyde (800 ha), Lower Orange (4000 ha) and Free State (3000 ha). At least five stakeholders from each of these areas or schemes were identified and interviewed (see annexure). The principle purpose during the interviews was to obtain the views of the interviewee on the research question and these have been synthesised in the next section for all the cases together. A separate volume that contains the records of the interviews is available. As an incidental purpose, information on each of the schemes was gathered and is presented here. Due to this incidental purpose and the availability of reports, the amount and depth of information varies.

9 CASE STUDIES

9.1 Mhlathuze Catchment

9.1.1 Overview

Most of this section is an edited version of a DWAF report²⁷.

The 1974 White Paper that prepared the way for the implementation of the then proposed Phobane Lake set aside 2000 ha (out of a scheduled 13 706 ha) for what was then termed the “Bantu Reservations”. As such, approximately 14.6% of the irrigation water to be supplied from Goedertrouw Dam was to be used for what was seen to be small-scale farmers. Currently only half of this allocation has been developed (937 ha).

At present there are five irrigation entities (currently termed boards but scheduled to be transformed into water user associations) that utilise and facilitate the distribution and use of water below Phobane Lake. These are predominately for sugar cane irrigation although there are some irrigated citrus farms. The irrigation schemes are listed in order of distance from the dam.

- Nkweleni Scheme (closest to the dam)
- Umfuli
- Heatonville
- Inkasa Irrigators
- UVS/Lower Mthlathuze Scheme (furthest from the dam)

Of these, the Inkasa Irrigation Scheme is the only scheme that is predominately made up of small-scale irrigators from previously disadvantaged communities. It is almost exclusively given over to sugar cane irrigation. Tongaat-Hulett and a variety of other role players jointly developed the Inkasa project. Tongaat-Hulett plays a key role as it manages, facilitates and provides extension services to the regions. They assist in an advisory capacity with all agricultural advice regarding irrigated sugar cane development and maintenance as well as providing access to a market. The extension services provided by Tongaat-Hulett, in conjunction with DWAF, assisted with the registration of the Inkasa Irrigators as a water user.

²⁷ Department of Water Affairs and Forestry. *Mhlathuze Socio-economic overview*. In “Water and Forestry Support Programme: Water Resource Management Component: Outline the Current Water Use Situation in the Mhlathuze Catchment (Output 1)”. WFSP/WRM/CON2003; Output 1. 10 January 2004.

Biyela, the small grower scheme visited during the current study, is one of the sub-schemes in the Inkasa irrigation area. Together with the Kwadlamba and Mzimela schemes, it comprises the 937 ha that has been developed out of the allocation of 2000 ha.

DETAIL OF THE INKASA IRRIGATION SCHEMES						
Name of Scheme	Size (ha)	No of Growers	Average size of Plot	Date Completed	No of other jobs created	Cost of Development
Biyela	502	285	1.75 ha	1991	280	R5.1m
KwaDlamba	111	30	3.7 ha	1991	63	R1.4m
Mzimela	324	300	1.08 ha	1995	160	R5.2m

As is evident from the above, the implementation of the currently operational schemes has resulted in the creation of some 615 small growers. Of these approximately 40% are women. In addition, the schemes have generated some 420 additional jobs. These jobs accrue to contractors who help the growers but are also secured in the Felixton Mill that receives the sugar cane.

In 2003, at the time the report under review was written, it was reported that of the three areas that had been developed both the Biyela and the Kwadlamba district had been very successful and generated a profit for the growers. During the development of these projects, there had been a reciprocal relationship between government and local farmers with regard to cost input. Local farmers were required to put in 2/3 of the cost while government paid for 1/3. The government's contribution generally amounted to clearing of the land and a once off ripping operation.

The projects faced several external challenges during the early years including drought and fluctuations in the sugar price. Internally, there was a problem surrounding the Eskom electricity account. There was allegedly financial maladministration, misappropriation and fraud perpetrated by the community representatives. Tongaat Hulett had to step in financially to keep production going.

The report attributes the failure to implement other schemes, using the water allocated, to a number of factors including:

- Changing institutional arrangements, notably the withdrawal of the Financial Aid Fund that had assisted the small growers to establish;
- Financial viability was compromised by the need to upgrade the electricity supply, poor road infrastructure and the distance to the mill;
- Shifts in the focus of government support agencies;
- Sources of finance for the operations of the growers; and
- Conflict in the intended beneficiary communities.

The report concludes that despite the will in certain quarters the problems with developing the small-scale irrigation sector, along the then current trajectory, appeared to be formidable. Factors included:

- Financing;
- Interest rates;
- Sugar Price;
- Market outlet;
- Mono crop development;

- Co-operative governance and communication;
- Management complexity and returns from small scale irrigation projects; and
- Community conflict around:
 - Land Tenure;
 - Traditional authority accountability; and
 - Gender issues.

Finally, the report concludes that access was not the limiting factor in using water as a vehicle for poverty alleviation in the catchment. An amount of some 13million m³ was still available from the allocation for small-scale irrigation development. Rather, it appeared as if structural conditions restricted the further development of the sector. In the main, these problems were related to unfavourable market conditions although issues specific to development of small-scale irrigation within the context of traditional tenure also played a role. Although in the area there was an awareness of the problems, the report could not identify any co-ordinated vision for their resolution.

9.1.2 The current study

During the visit to the Biyele project, it was reported that irrigation of the 500 ha had ceased. Community representatives ascribed this to internal conflict over financial management and particularly the Eskom account. The project relies collectively on pumped water and the electricity account had to be paid. When the irrigators stopped paying, Eskom continued for a few months but then cut off the electricity. The maintenance of the pumps was another problem. Without water much of the sugar cane died. The community does not appear to be able to resolve the internal disputes and the problems are deadlocked.

Noteworthy aspects from the case study are:

- Small growers need intensive and sustained support, which need is in part due to the small plot sizes on communal lands;
- The general culture in the community was one of sharing but also one of factiousness and obstructing individual success;
- Where communal farming relies on a major cost item such as pumping there is a high potential for internal factiousness to disrupt and indeed halt production (this accords with the findings of Bruns that are reviewed above);
- Farmers on small plots lack the resilience against setbacks, such as drought and market prices, that are inevitable in the irrigation sector;
- The education level of many small scale farmers is low and they are consequently unable to function effectively in a market or business management sense that is a core competency for modern farming;
- One view was that the withdrawal of the financial assistance by FAF was the main reason why the other proposed schemes in the area were never implemented; and
- Government has not coordinated its support programmes and therefore synergies are not achieved.

9.2 Uhluhluwe Catchment

Following a yield analysis for the Hlulwe River in the 1970s, one-third of the water available for irrigation was allocated to black farmers on the south bank. This is effectively 1000 ha. It has never been used. Officials in the KZN Department of Agriculture and Environment Affairs said that the feasibility of a project had been investigated on a number of occasions. Circumstances were however difficult. Not least because potentially irrigable soils were situated high above the river level and at some distance. The associated energy costs rendered the project financially non-viable.

As there had been no initiatives to establish black farmers in the area, there were no potential interviewees to inform the study other than the officials whose views were in any event captured on the Mhlatuze case. Consequently, no further work was done on this case.

9.3 Blyde 800

9.3.1 Introduction

The Blyde river irrigation area is situated along the Blyde River near the town of Hoedspruit in Limpopo Province. The water is derived from the Blyderivierspoort Dam. The Blyde River Irrigation District (BRID) was established under the old Water Act of 1956. It comprises 42 366 ha of which 8 150 ha were scheduled under the old system and accordingly are regarded as having existing lawful use entitlements in terms of section 32 of the new National Water Act of 1998. The Lower Blyde River Water User Association (LBRWUA), established in terms of chapter 8 of the NWA and the successor (in terms of section 98) to the Blyde River Irrigation Board (BRIB), has administrative and managerial control of the use of irrigation water.

Most crops presently cultivated under irrigation in the LBRWUA are high value perennials (e.g. mangoes) with a long establishment time and high establishment cost. This translates into a long-term investment before the crops become economically productive and a positive cash flow is attained. An exception to this is vegetable production.

9.3.2 Origin of Water Allocation

Until the 1990s, irrigation water had been distributed in the district via a 107 km long earthen canal system. However, the canals were old and water distribution had become inefficient. Therefore, the then BRIB decided to replace the canals with a pipeline, approximately 128 km in length distributing water under pressure to participating irrigators.

At the time of planning of the buried pipeline to replace the canal system, despite the fact that the initiative was to be privately funded, Ministerial approval for the proposed works and borrowing powers were required in terms of the Water Act of 1956. The then Minister of Water Affairs & Forestry, Prof Kader Asmal, gave his support to the project, not least because it represented a significant saving of water. However, the Minister did attach a condition to this support, viz. that a portion (two-thirds of the 15%) of water originally allocated as “drive water” for the canal should be used for the empowerment of emerging farmers and their integration with existing commercial irrigators in the BRID. This water, which equals 7 920 000 m³ per annum, translates into an irrigable area of 798 ha, the so-called Blyde 800. When allocating the Blyde 800 water to emerging farmers, the Minister did not have to consider appropriation of any existing water use entitlements held by landowners in the then irrigation district.

The Minister stipulated that the necessary capacity be reserved in the pipeline by the BRIB for the purpose of the establishment of emerging farmers and that the reserved capacity could not be allocated for other purposes. In addition, the BRIB was to play an active role in the settlement of emerging farmers, in conjunction with DWAF and the Limpopo Province Department of Agriculture (LPDA).

9.3.3 The Pipeline System

The design of the new pipeline distribution system, comprising two major lines (east and west), has taken into account the Blyde 800 water but only to the extent that the system as a whole accommodates this water. This means that, generally, it is possible that certain portions of the pipeline distribution system may be overloaded for certain periods during a season, depending on where the Blyde 800 water will eventually be taken. In addition, at the time of designing the pipeline distribution system, an assumption was made that the Blyde

800 water would most probably be used on the north-western side of the Trogon pressure reducing station. The area where the pipeline can deliver the water is then effectively only within the traditional irrigation area. Any project outside this area such as to the north bank of the Olifants River would require expensive linking infrastructure, increasing the cost of already costly water delivery.

During construction of the pipeline considerable difficulties were experienced with conditions and with the contractor. Costs increased considerably and the pipeline was eventually operationalised several years late. This caused institutional difficulties within the then BRIB and several farmers threatened to withdraw and others stopped paying. The DWAF had to intervene financially which in part was to cover the costs of the unused allocation of the Blyde 800. Eventually, the financier, RMB, used its contractual step-in rights and assumed control of the pipeline, which it still manages. All of these difficulties weakened the institutional fabric of the BRIB/LBRWUA and it was unable to contribute meaningfully to implementing the Blyde 800 project.

9.3.4 DWAF Proposals

In 2001, the Department of Water Affairs and Forestry within the context of the then current planning in the Phalaborwa Spatial Development Initiative, considered several models for implementing the Blyde 800 project. It was realised that the farming models in the area were informed by the high value of water and that it was high-tech with high value crops. The factors of production are a unique combination of capital, water, land, skills and market access. The state, in order to achieve its objectives, had available the Blyde 800 water and through various mechanisms could make capital available. It would not itself be able to mobilise the other essential factors. These could only be obtained through partnership with existing farming operations. It found that a public competitive bidding process for the water use licences that were to be issued in terms of the National Water Act of 1998 would be the most appropriate way forward. A request for proposals document was drafted. This effectively required joint ventures between emerging farmers and existing irrigators. For a number of reasons, mainly related to the completion of the construction of the pipeline, the implementation of the project could not be initiated at the time.

The pipeline project was finally completed and made operational following numerous technical and financial difficulties. Towards the end of 2004, the Department of Water Affairs and Forestry considered it appropriate to re-examine the project to determine whether the circumstances then permitted the Blyde 800 project to be implemented via a public request for proposals. The LBRWUA and the Limpopo provincial government lent their tacit support. DWAF appointed the Development Bank of Southern Africa as its transaction advisors. The stakeholders were consulted and the request for proposals document was re-drafted.

9.3.5 The Land Claim

However, it emerged that in the meantime an extensive land claim had been gazetted in the Hoedspruit area that included all of the land commanded by the Lower Blyde River Water User Association pipeline. In early 2004, the land claim process got underway. In December 2005, the DBSA, as transaction advisors, found that the land claim had introduced many uncertainties to the market. It recommended that it was then inopportune to proceed with the envisaged public request for proposals. DWAF decided to await the outcome of the land claim process before proceeding with the Blyde 800 project.

By 2007, the land claim process had resulted in the restitution of several irrigation farms. One the successful claimants informed this study that their focus had been on the claims process and that they had not had the capacity to also address the Blyde 800 allocation. Some of the claimant groups have opted to enter into joint ventures with the previous

owners. These arrangements are now settling down and recently attention has been given to making application for part of the Blyde 800 allocation.

9.4 Lower Orange

The allocation for black farmers in the Lower Orange River in the Northern Cape Province arose originally from the mid-1990s Orange River Re-planning Study that determined that water for 12 000 ha of irrigation was available for allocation from the Orange River. The DWAF decided that the Lower Orange River Water Management Area would receive 4000 ha. The water is not allocated to any particular scheme, area or location. The opportunity to use any part of the allocation at a particular location is limited by its physical proximity to the river or the existing distribution infrastructure. The capacity utilisation of the existing distribution infrastructure poses a further limitation.

There are a further 3000 ha of unutilised allocations to black farmers at Goodhouse, Riemvasmaak and Douglas (Bucklands).

There have been long discussions around the development models that should be applied and the approach is ultra-cautious. Initially the CCAW had not functioned effectively. The tempo has however picked up over the last two years as government capacity has improved. DWAF and the Department of Agriculture had an outreach programme that publicized the availability through a number of channels. Applications now exceed availability and there is confidence that the 4000 ha will be licensed in due course. Licenses have been issued for two schemes totalling 300 ha and a scheme of 800 ha has been recommended by CCAW.

Noteworthy aspects from the case study are:

- It is unrealistic to assume that non-irrigation farmers, used to working on community trust lands, can easily convert to being commercial irrigation farmers;
- Current financial support is inadequate in the high-cost environment;
- The cost of new development currently exceeds, in most cases, the market prices of developed irrigation farms.
- The best quality land, closest to the river and at reasonable elevations is already used;
- Proposals for joint ventures with commercial farmers have not found favour with the DWAF because the proposed structures generally favoured the commercial farmer;
- There are many who have farming skills from having worked as supervisors and managers on commercial farms but farming after all is a business and there is a serious lack of farming **business** skills. With the lack of business skills and marketing skills, few in the emerging sector can get together everything that is needed to start irrigation farming;
- Economies of scale work against the small farmer and undermine competitiveness;
- Where groups and worker's trusts own land there are a number of challenges. Usually, only a small part of the group actually farms. However, all claim a share of the proceeds and there is often resentment;
- Individual farmers or groups cannot usually prepare the required business plans and rely on the (insufficient) in-house capacity of the Provincial Department of Agriculture or in some instances on community-based organisations and NGOs to assist them;
- Business planning has shown that most project proposals would not be viable if the farmer has to pay for bulk infrastructure;
- Extension services are currently inadequate;
- The selection of beneficiary farmers is critical. Who really wants to be a farmer rather than those being opportunistic? CBOs must have a role. Mostly, new farmers should be drawn from the reservoir of semi-skilled workers who had been supervisors, etc. on commercial irrigation farms;
- Ironically, land claims have delayed several project proposals; and

- Mentorship and support programmes are essential.

9.5 Free State

The allocation for black farmers in the Free State arose originally from the Orange River Re-planning Study that determined that water for 12 000 ha of irrigation was available for allocation from the Orange River. This relates to three water management areas, namely, Upper Orange River, Lower Orange River and Fish-Tsitsikamma. The DWAF decided that each WMA would receive 4000 ha and that the Upper Orange WMA allocation would be shared between Free State and Eastern Cape, with 3000 ha to Free State and 1000 ha to Eastern Cape.

Note that the WMA, water user associations and provincial boundaries do not coincide. The allocation is recorded in the internal strategic perspectives that have been drawn up by the DWAF for each WMA. The ISPs are precursors to the catchment management strategies required by the National Water Act. The water is not allocated to any particular scheme, area or location. The opportunity to use any part of the allocation at a particular location is limited by its physical proximity to the river or the existing distribution infrastructure. The capacity utilisation of the existing distribution infrastructure poses a further limitation. For example, the Orange-Riet canal would not be able to deliver additional entitlements.

The Coordinating Committee for Agricultural Water (CCAW) was established to mainstream the marginalised but got bogged down in detail with the result that some players have lost interest and meetings are poorly attended and the work programme not fully supported. Nevertheless, it has reviewed a number of project proposals and 270 ha in the Free State has been allocated to schemes that are under way with a further 100 ha at Venterstad nearing finalisation. There have been no approvals for individual farmers.

Noteworthy aspects from the case study are:

- Based on commercial trading, irrigation land and water entitlements in the area are very expensive and the system of grants is hopelessly inadequate relative to these prices;
- While the development of schemes for resource poor farmers has been time consuming, no new water licences for white farmers have been issued;
- There is quite a lot of trade in water licences and a consolidation into larger units is taking place reflecting the poor farm-level financial viability of smaller commercial farming;
- Government support systems are time-consuming and not responsive to market conditions thus precluding resource poor farmers purchasing land or water licences that may come onto the market; and
- Irrigation in the area depends heavily on the existing distribution systems so that potential locations are very restricted or new developments would have to include costly bulk supply infrastructure.

PART C: ANALYSIS OF INTERVIEW OUTCOMES

This section collates and analyses the views obtained during the interviews. At places, reference is made to some of the published work that is reviewed elsewhere in this report. The items that follow are the collective response to the research question:

What is inhibiting previously disadvantaged irrigation farmers from using the water allocations that are available to them?

It seeks to emphasize those points that were made convincingly by more than one interviewee or points that were supported by the literature review. From the retrospective nature of the question, the response necessarily emphasises constraints and negative factors. This is not to say that many positive initiatives have not been taken. Many of these are reflected in the literature that was reviewed.

It needs to be reemphasized that overwhelmingly the interviewees had to draw on their experiences with multi-farmer schemes and those mostly in the old homeland areas. It is a reasonable assumption that the individual potential farmer will have to face all these hurdles and probably more.

10 INTERVIEW FINDINGS

10.1 Irrigation farming is inherently complex

Almost without exception, interviewees pointed to the complexity of modern irrigation farming. To start with, there is the technical complexity of farming such as equipment, electricity usage, water application optimisation, increased vulnerability to plant disease and water quality. Blacks in the employ of commercial farmers can acquire these skills through experiential learning and would be readily able to transfer them into their own enterprises.

However, irrigation increases the intensity of farming. Irrigation incurs high capital and operating costs. Irrigation, other than on the smallest scale, is financially incompatible with the subsistence strategies followed by many rural dwellers and particularly those on the typical former homeland schemes. An important feature of a subsistence strategy is that it focuses on limiting the downside of actions in contrast to the maximisation of the upside that is a necessary core driver for successful irrigation. The dis-economies of small-scale farming become more significant. Planning horizons increase, as maintenance and efficiency become key success factors. High value crops are needed to render capital-intensive farming financially viable. The marketing of produce becomes increasingly complex as farmers resort to distant and even international markets. The futures markets are used to manage risks. It was pointed out that there are regularly irrigation farmers, even among the largest, that go insolvent every year. One scheme was mentioned where successful dry-land farmers were converted to irrigation but the scheme subsequently failed. In addition, commercial banks are reportedly cautious about making loans to all but the best commercial white farmers due to the high risks involved in irrigation farming.

In this complexity, a technical knowledge of farming alone is insufficient. Financial, business and management skills become key success factors. Unfortunately, the aspirant black irrigator who has been a farm supervisor or manager has not been exposed to these additional skills. In short, there is a huge chasm between the person who has been a dryland farmer or a manager or supervisor on an irrigation project, and a successful commercial irrigation farmer. One of the interviewees on this study confided that the provincial department of agriculture was wary of taking on irrigation projects because of the demand on departmental resources relative to the scale and prospects of success.

Assembling all the factors of production for a new farming enterprise that is above the threshold for financially viable irrigation, is an almost impossible task for a resource poor farmer.

10.2 Government Coordination of Policy and Support is Weak

Most interviewees shared the belief that inter-departmental coordination between state role-players was weak. Some officials did not agree while the more vehement criticism came from those outside government. The fact that water is a national competency while agriculture is provincial complicates coordination. There was some mild interdepartmental criticism, prompted it seems, by differing prioritisation and resource allocation. An instance of “turf protection” was also discerned.

Most interviewees welcome that the different national departments have articulated well-considered policy goals. The policy positions however are not always cohesive; one example cited was that DWAF require land ownership before certain support can be granted whereas the procedures of the Department of Land Affairs are lengthy and in instances require business planning. Another was an instance of a farmer being granted finance to buy a farm but denied capital to purchase machinery. Notwithstanding that policy is formulated in cooperative mode, the policies are departmentally driven. In this instance, the water allocation reform strategy is “owned” by DWAF but DWAF does not have the mandate to implement all of the actions that are necessary to convert an allocation into actual farming. In the national and provincial departments of agriculture, irrigation is only one aspect of total agriculture so that these departments do not have the same priority or focus. Moreover, the National Agricultural Policy of “food first” is significantly different to the notion of irrigation.

The **National** Coordinating Committee on Agricultural Water, apparently no longer meets. More than one interviewee confided that they took this as an indication that the topic was off the agenda of political leaders and departmental top management. At provincial level, there is considerable variation with some CCAWs working effectively while others have ceased operating completely. It seems that in the absence of top management attention to their functioning, the particular circumstances in the province and the motivation of individuals in the key departments, determine whether the CCAW works and indeed whether the aspirant farmer perceives government as consistent and helpful.

The CCAWs were intended to coordinate departmental action. At least on those CCAWs that still function there is an exchange of information and agreement on the merits of particular project proposals. However, each department, whether national or provincial, has its own procedures that it follows. This inevitably creates multi-channel hoops, each with different application requirements, forms, process periods, etc. through which the aspirant black irrigator must pass. Whereas the officials regarded their requirements as not onerous, collectively they represent a considerable barrier. This is partly mitigated in areas where the CCAWs are operating as intended and the departments have actual capacity to assist the applicants.

Several instances were mentioned where a department interacted independently with prospective farmers explaining government support packages and “promising” much. However, the particular officials were not able to deliver on their undertakings because of bureaucracy, failure to mobilise other departments or shifts in policy and budget. This lead to disillusionment and a loss of confidence thus depressing entrepreneurial initiative. The fact that the DWAF has been unable to make financial grants for over a year because of a lack of authorising regulations was severely criticised in this context.

10.3 Criticisms of government actions and approaches

Outside of government, there is impatience with the pace of transformation in the sector. Confidentially, individuals mentioned the failure to finalise the Water Allocation Reform Strategy and the suspension of DWAF grants pending the proclamation of empowering regulations. The slow pace of land restitution and land reform was also mentioned.

Generally, there is disappointment with the practical operational effect of some of the major national programmes that affect irrigation. For example, the Comprehensive Agricultural Support Programme (CASP) is perceived to be bureaucratic and not achieving much in the sub-sector. Several interviewees mentioned Asgisa as promising large investment in agriculture but which was increasingly a fading dream.

It appears that most government action prioritises groups whereas individuals are neglected and even excluded. It was said that while current proposals for schemes included a few new policy tweaks, most resembled those established in the apartheid years (see Denison and Manona²⁸ for a description of many of these difficulties). This includes the characteristics of firstly, small and usually not financially sustainable plot sizes, dependence on outside agencies to manage infrastructure, low institutional development to allow participants to act collectively more easily and inadequate training in the range of skills needed.

Government has failed to maintain extension services at an effective level. Departments are said to be understaffed and the staff under-trained. Extension, specifically for irrigation, is a particular problem due to the specialised nature of skills. This factor contrasts sharply with the many commitments to support services advanced in the policy and strategy documents reviewed above.

Interviewees mentioned several instances where government publicised the support that it offered. This though was mostly at a departmental level and it is not consistent. Many prospective farmers do not receive, or are at least unable to find, comprehensive information packages on all the assistance available to them. Many are not informed about their rights under the law nor do they know of, or do not understand, the administrative processes.

The principle government activity has been the creation of communal projects. This includes the system of community property associations that are used for joint ownership where a commercial farm has been returned to former owners. Technical design and the policy-driven need for financial viability restrict the choices that the individual farmer can make. Project developers become increasingly dominant in decision-making. The participation framework that applies in all government work becomes compromised and the farmer is left with a situation that he is unable to manage. One instance was referred to as “death by development”. According to the work of Bruns reviewed above, this model is particularly complex and situation specific.

At the local government level irrigation projects are not making their way into the integrated development plans that form the basis of local government support for local economic development.

The institution of the water user association was introduced by the National Water Act, in part, to form the platform around which resource poor farmers could mobilise. WUAs that converted from irrigation boards and government water schemes created under the Water Act of 1956, have generally been successfully established. However, those envisaged for the homeland schemes have not emerged. Interviewees ascribe this to inadequate government institution building and neglect in favour of catchment management agencies.

²⁸ Denison J and Manona S. Principles, Approaches and Guidelines for the Participatory Revitalisation of Smallholder Irrigation Schemes. Water Research Commission Report TT 309/07. March 2007.

One view was that irrigation is not a suitable instrument for poverty alleviation but should rather be used as an opportunity for entrepreneurial individuals. This seems in contrast with the government approach where poverty attracts government intervention in the form of irrigation proposals that seek to spread benefits as widely as possible. This undifferentiated approach draws in many who are unable to farm or perhaps do not even want to farm.

10.4 Financial Support is Inadequate

Most interviewees regard irrigation as an expensive endeavour and the financial grants as substantially inadequate for reaching the transformation objectives of the irrigation sub-sector. The policy is that the farmer is expected to contribute. However farmers attempting to emerge from the previous homeland system are, with very few exceptions, resource poor. The five-year period over which the Department of Water Affairs phases out its financial support for operations, is wholly unrealistic.

It has already been pointed out that different institutions provide different financial support at different points in the irrigation farming value chain. The inability to secure finance for a particular function in the value chain will have a negative cascading effect. Marketing was mentioned as one function that was particularly difficult to finance.

10.5 Historical Factors Persist

Historically the former homeland schemes were characterised by:

- On-going subsidisation by government;
- Dominant or prescriptive management;
- A focus on and central management of the irrigation infrastructure;
- Small plots that have little hope of financial viability;
- Subsistence and livelihoods strategy responses by the plot-holders;
- Creation of dependency; and
- Suppression of individuality and entrepreneurship.

Several interviewees indicated that these discredited approaches persist, with only minor variations, in the project designs still being made.

On the other hand, interviewees point to the support provided to white farmers by previous governments. From the Great Depression years of the 1930s until the Orange River Project of the 1970s, government provided sustained, extensive and intensive support for farmers. This is in stark contrast to the current position where financial and institutional support is regarded as inadequate and extension and research services have all but been withdrawn. The declining provision in the DWAF operational subsidy seems to rankle particularly.

10.6 The Supply of Potential Farmers

Some interviewees question whether there is a real supply of potential farmers who would actually want to take up irrigation farming with its associated high risks. People living in the rural areas are traditionally more conservative and follow cultural tradition. Not all rural dwellers aspire to be farmers. Land is valued at the emotional and cultural levels far more than as a factor of production. Male black farmers have traditionally been livestock farmers and the transition to arable land and particularly irrigation farming is not easily made. On the other hand, women have historically planted crops. However, this was usually part of a subsistence or survivalist strategy and many were caught in the poverty trap. In seeking to rise above this level, they encounter additional barriers such as access to land and being able to employ labour.

Young black people are not attracted to farming. Many leave the rural areas at the earliest opportunity. One study shows that 50 per cent of farmers are over the age of 50 years. One

interviewee put it that the children had seen their parents and grandparents work hard as labourers but remain in poverty. Why would they want to walk the same path?

A point made by one interviewee is that the government system of social grants is a disincentive to more intensive farming. In the poor rural areas of other countries, there are food supply imperatives to get the most possible out of farming.

10.7 Cultural Factors

As was noted above, a significant part of the anecdotal evidence collected by this study related to experiences with the former homeland schemes and newer communal schemes that have been implemented with minor adjustments. In these circumstances, cultural factors are an important determinant of the performance of such schemes.

The principal of these is the **land tenure** system. Most regularly mentioned in this regard is that financial institutions do not regard communal land as good collateral and the farmer's access to private sector financing is severely curtailed. Interviewees also noted other negative aspects. In the culture of affording everyone equal opportunity, the allocation of land is made entirely on social norms, and is not based on farming skills or the capacity and willingness to actually farm. This process also ignores the threshold size for financial viability. In many instances, only a minority of rights holders actually farm and there is no system by which poor farmers can be removed from the land (the natural selection process). For the successful irrigator wishing to expand, access to additional land becomes a significant problem.

From the instances reported by interviewees, communities appear not to have sufficient **conflict resolution mechanisms** to ensure the day-to-day smooth running that is essential for successful communal irrigation. Conflict arises particularly around items such as the collection of charges for items like electricity. It seems that traditionally rights-holder could do more or less, what he chose on his land allotment and there were no on-going costs to pay. Certainly, past irrigation scheme designs paid insufficient attention to institutional building around the project that would enable the community to effectively manage operations.

Most rural communities have a strong tradition of sharing and providing social support mechanisms. However, the other side to this is the "**tall-poppy syndrome**" where individual excellence and progress is discouraged. The dark side manifests in the sabotage of installations, which several interviewees reported.

There is very **little tradition of irrigation farming** in black communities; rather livestock farming is the first choice. There is a chasm between the two activities.

Gender issues persist in communal farming.

10.8 Availability of Bulk Infrastructure

Transferring irrigation water from a river to a usable position on the farm is costly. The easiest and least costly of positions along the river are already used. In part, this is why extensive schemes such as Vaal Harts were constructed. In determining new scheme viability, government planners add in the cost of new infrastructure. This is often enough to render the proposal non-viable. The individual prospective irrigator must then add the cost of getting the water to the farm gate or add this factor to the selection criteria for a site thus adding another important variable to the complexity of finding a viable proposition.

The other aspect of infrastructure deficiency that was mentioned was access roads to the farm and those to the markets.

10.9 Institutional Development

Institutional development refers to the environment in which the aspirant irrigator must operate. Interviewees were generally of the view that government does not pay enough attention to this important element. This includes:

- **Water user associations**, established in terms of the National Water Act, have not been facilitated in the former homeland or other small-scale farmer schemes. The WUAs that are converted irrigation boards or government water control schemes are set up as operations entities and do not have the resources to become development agencies for black irrigators. Some have however taken initiatives to encourage black irrigators. Without WUAs emerging farmers have no institution around which to mobilise and manage collective aspects of their irrigation.
- The capacity for **extension services** to assist new black irrigators is almost non-existent. This relates to the number of staff and their proficiency levels, priorities and sufficient budget. The scarcity of extension services also relates to beneficiaries of the land restitution programme.
- Many interviewees regarded **mentorship and partnering** as essential for establishing black irrigators. Some interviewees cited successes and a minority of interviewees mentioned exploitative relationships. Government appears distrustful and tentative on the matter. Equity schemes in the Western Cape were mentioned as successful but were outside the scope of this study.
- **Organised agriculture** is generally credited with a positive role but equally that more initiative could be taken. There do not appear to be any barriers for emergent farmers to join the organisations and to benefit from participation. AgriSA and NAFU work together to promote black farming interests and issues. **Agri-business** does what the name suggests, i.e. it takes a business approach.

In the new economic terminology of wealth²⁹, the aspirant irrigators find themselves with low *intangible wealth* consisting of human capital and the value of social institutions and which is now regarded as the dominant determinant of development.

10.10 Continuing and Comprehensive Support

Several interviewees contrasted the current levels of government support for farmers with that provided for the irrigation projects established for white farmers from the 1930s to the 1970s. Government then provided **all** infrastructure and continued to provide a comprehensive support package for **decades**, including inexpensive finance, extension and research services, operations management and disaster relief.

²⁹ The World Bank. *Where is the wealth of nations? Measuring Capital for the 21st Century*. 2006.

PART D: THE WAY FORWARD

11 THIS STUDY RELATIVE TO OTHER INITIATIVES

This study was undertaken to obtain **anecdotal** responses to the research question. At the same time, other initiatives were underway including:

- The Department of Water Affairs and Forestry is preparing a further revision of the water allocation reform strategy;
- Department of Water Affairs and Forestry is preparing a Toolkit to support operational staff with implementing water allocation reform; and
- The National Department of agriculture is preparing an agricultural water policy.

The findings of this report reflect mainly the interviews conducted with the selected stakeholders with some reference to other published research mainly of a supplementary nature. Hopefully, it can inform the finalisation of the abovementioned initiatives. At the same time the initial draft reports of these initiatives have identified many of the same issues.

12 CORE CONCLUSIONS

In summary, it is clear that irrigation farming is neither easy nor without risks, with even the biggest commercial farmers going out of business. Thus, it is important to recognise that irrigation is neither an easy nor a cost effective solution to redress unequal distribution of water resources, and in turn rural poverty or food security.

The trajectory of development of black irrigation farmers continues to follow the model established in the apartheid era of establishing communal schemes with many smallholders. While some adjustments have been made, the determining elements remain, being mainly small plots, communal land, and the absence of institutional development. This model is not sustainable without continuing and extensive financial and institutional support. While the model may serve social objectives, the prospects of creating independent commercially orientated irrigation farmers able to take up additional water allocations, are almost zero.

Smallholder schemes throughout the country are in crisis. This is attributed to:

- flaws in the designs, particularly related to institutional aspects;
- the persistence of dependency engendered by earlier paternalistic management;
- the precipitous withdrawal of financial, management, extension and research support after 1994;
- the failure to effectively implement core aspects of declared policy and support strategies; and
- the negative effects of the scale of farming in an increasingly complex sector in terms of financing, markets and technology.

The revitalisation efforts have been only partly successful and in some instances, they continue to follow approaches that experience shows have not been successful.

The government's support packages have become a maze through which aspirant individual irrigators must find their way. The financial parts are in any event inadequate for irrigated agriculture. Black farmers and even NAFU are not well informed about government initiatives or their rights under the law and much more needs to be done on information dissemination. The notion that emerging farmers can without sustained, close support of many forms, easily bridge the chasm between farming on schemes such as those of the former homeland governments and commercial irrigated agriculture is unrealistic. The Comprehensive Agricultural Support Programme has yet to produce results in the irrigated agriculture sub-sector.

The mechanisms for effective inter-departmental cooperation have deteriorated nationally and in several provinces. On the one hand, the Department of Water Affairs and Forestry is attempting to drive black irrigated agriculture through water allocation reform. On the other hand, the national and provincial departments of agriculture are concerned with the whole spectrum of agricultural activity and, if anything, have de-emphasised irrigated agriculture as a development mechanism.

The availability of water allocations, with the exception of some, mostly northern areas, is not the issue. The evidence suggests that there are considerably more unutilised allocations than were listed in the case studies. At the current rate of uptake, it will be years before the un-utilised allocations will be transformed to viable farming activities.

13 RECOMMENDATIONS

These recommendations are mainly based on the anecdotal evidence gathered by the study. They are necessarily general in nature. In addition, they do not cover the broad field of agricultural water use but only with those uses where an allocation has to be made in terms of the National Water Act and that will in due course be converted to a licence and agricultural activity. The reader is referred to the more detailed recommendations made by recent research into the revitalisation of schemes and the use of water for food gardens, which is cited in the text above.

If government is to establish commercially-orientated black irrigators it will need to **substantially increase and simplify access to** financial support mechanisms and bulk infrastructure as well as the *intangible wealth* available to farmers, being:

- Extension and research services;
- Institutional (including social) development; and
- Training opportunities in the areas of finance, management and marketing.

Government has declared several policies and strategies to address these issues but implementation is perceived as weak or non-existent. To correct this, government will need to re-emphasize the political commitment to black irrigation farmers. Departmental top managements will need to co-ordinate and lead a revitalised and re-defined inter-departmental programme for irrigated agriculture. Sub-programmes should include one to identify and intensively train potential commercial farmers, another to provide mentorship and another to support directly the aspirant farmers with assembling all the factors of production.

Government needs to do much more about **disseminating information** on its policies and support programmes. Extension services are closely linked to information dissemination.

Government will need to make a **long-term commitment** to financial and institutional support for the sub-sector.

If government continues with the smallholder irrigation model it will need to recognise that for the schemes to continue operating, in addition to the above, they will require **indefinite and extensive financial and close institutional support**. The prospect of individual farmers emerging from this system to become fully independent and to be empowered to take up additional water allocations is minimal. Special transitional support programmes that are not part of current policy proposals will be required.

Appendix: List of Interviewees

WATER RESEARCH COMMISSION: WATER ALLOCATION CASE STUDIES					
LIST OF INTERVIEWEES					
AREA	ORGANISATION	DESIGNATION	NAME	TEL NO	e-mail
NATIONAL	DWAF Pretoria	CD: Water use	Debora Mochotlhi	012 336 7500	mochotlhid@dwaf.gov.za
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		Sen Spec Eng (Sec = Erika)	Francois vd Merwe	012 336 8245	francois@dwaf.gov.za
		Man: Agricultural Water Use Dev Finance	Tshilidzi Mathobo	012 336 8066 082 807 6160	tshilidzi@dwaf.gov.za
			Thabo Masike	011 336 6793	qtr@dwaf.gov.za
		Consultant	Gavin Quibell (Coll = Jackie	012 336 7578 082 563 4504	tmc@dwaf.gov.za
	Dept Agriculture	Chief Engineer	Pikkie Strumpher	083 306 9891 012 846 8560	pikkies@nda.agric.za
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			Chris Stimie	082 469 4535 012 804 5014	dir@rieng.co.za
	Water for Food		Marna de Lange	082 807 6523	marna@global.co.za
	National African Farmers Union		Steve Mokoene Motsepe Matlala	0824559155 0123233197 0829334858	
	AgricSA		Nic Opperman		
	WRC		Gerhard Backeberg		backeberg@wrc.org.za
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			Erwin Koch	033 355 9336	koche@dae.kzntl.gov.za
	Heatonville IB		Billy Nelson		seagull@kznmail.co.za
	Tongaath Hulett (Felixton Mill)		Mike French	035 791 5000	Mike.French@huletts.co.za
			Goodman Mkwanzu		
	Biyele Farmers		Simon Vundla		Via Goodman Mkwanzu
			M Mabaso		
			SZ Cele		
			M Sibiya		
			Ms P Luthuli		
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