ENHANCING SMALL-SCALE GROWER SUSTAINABILITY THROUGH INSTITUTIONAL CHANGE

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Abstract

Growers operate in a commodity market where survival is dependent on high volume, low cost production. In this environment, small-scale growers are potentially the most severely affected, due to small farm sizes and market failures. In Mpumalanga, small-scale sugarcane growers farm on communal land. It is difficult for growers to increase scale due to the communal property rights regime, and land area is limited by soil type and water rights. Growers therefore have declining incomes from a fixed area, which impacts on their ability to invest and undermines their incentive to farm. The result is that yields and net farm incomes have declined to the point where grower sustainability is threatened. This issue has been exacerbated by growers operating in groups where they depend on one another for on-going investment and maintenance of common irrigation infrastructure. Group schemes are often plagued by high transaction costs and 'free riding' which makes compliance and sanction difficult.

A grower-miller initiative was launched to address the sustainability challenges facing small-scale cane growers in Mpumalanga. The project aims at improving grower sustainability by introducing predictable institutional changes that are supported by growers at irrigation project level. Institutional changes identified include growers consolidating into co-operatives, facilitation of land rental transactions and management agreements. Governance is a key factor, and irrigation projects are being reconstituted to ensure greater accountability and transparency at project level. This paper describes institutional changes and methodologies used to date. Lessons learnt from this process have implications for all small-scale growers.

Keywords: small-scale growers, tenure reform, sugarcane, sustainability, institutional change

Introduction

Small-scale growers in Mpumalanga face decreasing opportunities to earn a reasonable living from farming small allotments. Returns to cane farming have steadily declined over time due to input costs rising at a greater rate than income. Long-term sustainability is therefore under threat due to diminishing returns from fixed communal allotments.

Growers in Mpumalanga operate in groups where they depend on one another for on-going investment and maintenance of common irrigation infrastructure. This exacerbates the sustainability challenges facing growers inherent in group projects, as underperforming growers negatively impact on performing growers by 'free riding' or lower levels of contribution.

Long-term sustainability in Mpumalanga requires scale economies and rehabilitation of irrigation infrastructure and crop. In order to gain scale economies, growers need to explore new operating models (institutional change) that allow for larger areas to be managed by the better performing growers in the group. The basis of a sustainability strategy should be to bring about institutional change that allows for existing property rights to be broadened and individuals to have contractual choices that promote scale economies.

In communal areas, institutional change needs to be adaptive and predictable. Adaptive change implies small predictable changes that broaden property rights without destabilising existing institutions. This paper attempts to outline the adaptive change process that growers in Mpumalanga are embarking on and share some of the lessons learnt to date. Impact of institutional changes can not yet be adequately measured, as facilitation has only recently begun. This would be a topic for a future paper.

Institutional change

New Institutional Economics is a school of economics that has evolved to explain how the structure of property rights and transaction costs affect incentives and economic behaviour (Furubotn and Richter, 1991). Institutions can generally be defined as 'the rules of the game' that define how individuals or organisations interact and contract with each other. Institutions comprise a set of rules and conventions that are either formal (laws, contracts) or informal (codes of behaviour, customs, traditions). Institutional rules must be able to govern the action of participants. This may be achieved voluntarily through customs and traditions or policed by an outside agency.

A cornerstone of institutional economics is the concept of transaction costs. All exchanges require a contract (whether formal or informal). It is the cost defining and enforcing contracts that constitute transaction costs (Coase, 1960). By implication, the more well defined and predictable a transaction is, the lower the transaction costs. Transaction costs can be influenced by group size. For example, where negotiations are between two individuals, transaction costs are generally lower. Where group sizes are large, transaction costs increase due to the cost of reaching agreement (Olson, 1971). Transaction costs are important as they determine which type of contracts will be entered into, or whether costs will preclude contracting and thereby inhibit institutional change (Thomson, 1996). Institutional change or innovation therefore seeks to lower transaction costs and realign property rights.

Growth and development are often viewed in terms of technological change and output. Nabli and Nugent (1989), however, argue that economic growth results from both technological and institutional innovation. Institutional change is therefore not necessarily a change in ownership patterns, but rather a broadening of the property rights and contractual choices individuals have.

Property rights in communal areas

Small-scale grower irrigation schemes in Mpumalanga fall under communal tenure. Typically, in communal areas, households have exclusive use rights to arable land and communal rights to grazing land (Thomson and Lyne, 1995). Growers do not enjoy private

property rights, rather the land is owned by the State. These areas are under the control of traditional authorities or *Amakhosi*. The Nkomazi area is under the control five *Amakhosi*. Irrigated arable land is allocated to families by the traditional authority through a Right to Occupy (RTO). All individual fields at irrigation project level have been GPS mapped by the relevant Mill Group Boards. Physical field boundaries and records are well known and documented.

Arable land is normally held in perpetuity by the family with limited rights as prescribed by the RTO. Land rights are normally restricted to use (cropping) rights only. Under the RTO, growers are not able to sell, lease or mortgage 'their' land. Evidence from Africa shows that placing restrictions on land markets does not necessarily eliminate market activity (Feder and Noronha, 1987). In practice, growers are exercising broader rights to land through informal lease arrangements and 'selling' land. A sale market has emerged amongst growers. In effect, growers are selling the right to grow a crop along with the value of the crop and any irrigation equipment. This points to growers having varying levels of perception of their tenure rights, which ultimately impacts on long-term decision making.

There is growing concern about and 'resistance' to land sales at irrigation project level (personal communication[1]). This is largely due to two factors. Firstly, families are selling land against their own better judgement for short-term gains and are losing potential income over the long-term. Secondly, land is often 'bought' by individuals outside of the community. The new owners initially do not see the need to co-operate with the group and therefore do not contribute toward irrigation scheme running costs.

Success of small-scale irrigation schemes

Research undertaken by the Water Research Commission has identified 317 small-scale grower irrigation schemes, covering approximately 50 000 hectares in South Africa. All these schemes are located in communal areas. Many of these schemes have collapsed or are under-producing (Denison and Manona, 2007). This experience is not limited to South African small-scale grower irrigation schemes, but appears to be a challenge facing the majority of schemes in Africa (FAO, 2001). Irrigation scheme failure is often evidenced by diminishing returns, declining yields per hectare, lack of interest by farmers and increasing debt levels.

There is a perception that small-scale irrigation schemes have potential for substantial contribution towards economic growth, employment and poverty alleviation. Consequently, these schemes attract significant government investment on an annual basis (Denison and Manona, 2007). Small-holder schemes represent a significant opportunity to impact positively on livelihoods of poor rural people. Irrigation schemes should be viewed as assets and business opportunities in the hands of communal farmers. Small-scale irrigation schemes can provide both full-time and part-time income opportunities for farmers (van Averbeke and Mohamed, 2010).

Shah *et al.* (2002) identified the following as possible causes of failure of irrigation schemes:

[1]J Dlamini, Lima Rural Development Foundation, 2010.

1. History of support from parastatals. After the democratic elections in 2004, parastatal support for schemes was phased out and management was handed over to farmers without adequate skills transfer.
2. Irrigation schemes are capital intensive and have high maintenance costs. These costs are often not provided for and regular maintenance is not undertaken, resulting in the schemes collapsing over time.
3. Absence of credit for farmers.
4. Absence of marketing plans.
5. Land tenure issues. Farmers are unable to grow their businesses due to land tenure constraints.
6. Plot sizes are often small. Farming on small plots cannot provide sufficient income to cover livelihood needs.

Mpumalanga small-scale growers

The first small-scale grower irrigation projects in Mpumalanga were established in 1985/86. There are presently 1243 small-scale growers delivering cane to the Malalane and Komati mills. Growers are organised into 36 irrigation projects covering an estimated 10 036 hectares of irrigated cane. All irrigation projects are under communal tenure. Average farm size is 7.3 hectares. Average grower age is 56 years. Approximately 33% of registered growers are women.

The majority of growers have been formed into groups (projects) that share a common irrigation infrastructure. Projects vary in size from 43 hectares up to 640 hectares. There are between 10 and 70+ growers per project. As a project, growers are responsible for the operation and maintenance of common irrigation infrastructure such as main extraction pumps, mainlines, balancing dams and booster pumps. Projects are also responsible for payment of electricity accounts. Individuals are responsible for in-field irrigation and maintenance. Farming income and expenses are for the account of the individual grower.

Management and maintenance of irrigation infrastructure is a real risk area. A large amount of group co-operation is required to maintain infrastructure, and ensure that sufficient funds are in place to pay electricity charges. Projects have tried to lower transaction costs by putting irrigation infrastructure and ESKOM cessions in place at Akwandze Agricultural Finance[2]. Cessions are on a per hectare basis to ensure that all growers contribute equitably. Funds are not always available at critical times due to:

- Poor budgeting.
- Declining yields.
- Late approval for release of funds.
- Unexpected/unbudgeted breakdowns.
- Theft of cables and pipes – currently a major challenge.
- Growers refusing to sign cessions.

The ability of large groups to co-operate in order to reach and implement decisions is plagued by transaction costs. Growers are responsible for pro-rata payments towards running and

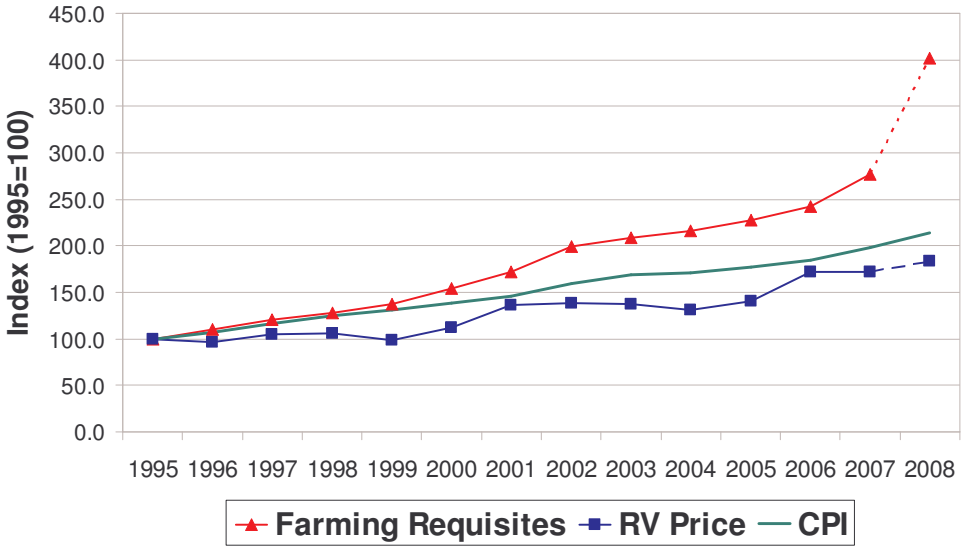
[2]Akwandze Agricultural Finance is a credit provider established by Mpumalanga small-scale growers and Tsb Sugar.

maintaining common irrigation infrastructure and electricity costs. 'Free riding' becomes an issue in cases where growers do not contribute pro-rata costs. The larger the group, the greater the transaction costs and the more difficult it becomes to reach consensus and enforce decisions. In a group, individuals have an incentive to undersupply effort. Decision-making becomes lethargic and quite often simple irrigation infrastructural repairs are delayed because of group consultation. It is not uncommon for simple maintenance issues to be delayed by weeks or even months while growers hold community meetings to reach a decision.

In an attempt to improve the maintenance of irrigation infrastructure, Tsb Sugar has established an irrigation support service for growers, to assist in ensuring that irrigation infrastructure is well maintained. The service includes free engineering advice and subsidised repair and maintenance service. Despite the services offered, growers often opt for sub-standard solutions because of group consultation and financial pressure.

Incentive to farm

The South African sugar industry finds itself in a cost-price squeeze, where costs are increasing at a greater rate than income (Figure 1). Declining profit margins per ton of cane places pressure on growers' livelihoods and affects their inputs into the crop. For growers to maintain net income levels, they have to achieve scale economies by increasing production through vertical (yield increase) and horizontal expansion (area under cane).



Source: SA Cane Growers' Association

Figure 1. Cost-price squeeze in the South African sugar industry.

The majority of small-scale growers operate on communal land, farming on average 7.3 ha. Growers therefore have limited opportunity to expand horizontally by increasing area under cane due to:

- Nature of land allocation. Land is allocated by traditional authorities.
- Tenure. Land is held under tribal tenure – it cannot transfer to more efficient users in an open market.

- Limited irrigable land. The amount of land that can be planted to irrigated sugarcane is limited. This is largely restricted by soil type, water rights and distance from river extraction points.

Given fixed farm sizes and declining margins, growers have been facing declining net incomes from farming operations. As a result, a greater proportion of farm income is diverted to family support and is not re-invested in the crop. Lack of re-investment in the crop places pressure on the ability to achieve vertical expansion – increased yields. The cycle of underinvestment results in a downward yield spiral, making it more difficult to increase yields without major investment. Ultimately the crop is 'mined' down to unsustainable levels.

Mpumalanga small-scale grower sustainability project

Small-scale grower yields have declined throughout the industry, as highlighted in Figure 2. Tons delivered have declined from the 2000/01 season to the 2008/09 season by 52% in the industry and 23% in Mpumalanga. Yield declines point directly to the long-term sustainability of small-scale growers. It is clear from the figures presented that measures need to be put in place to turn the future of small-scale growers around.

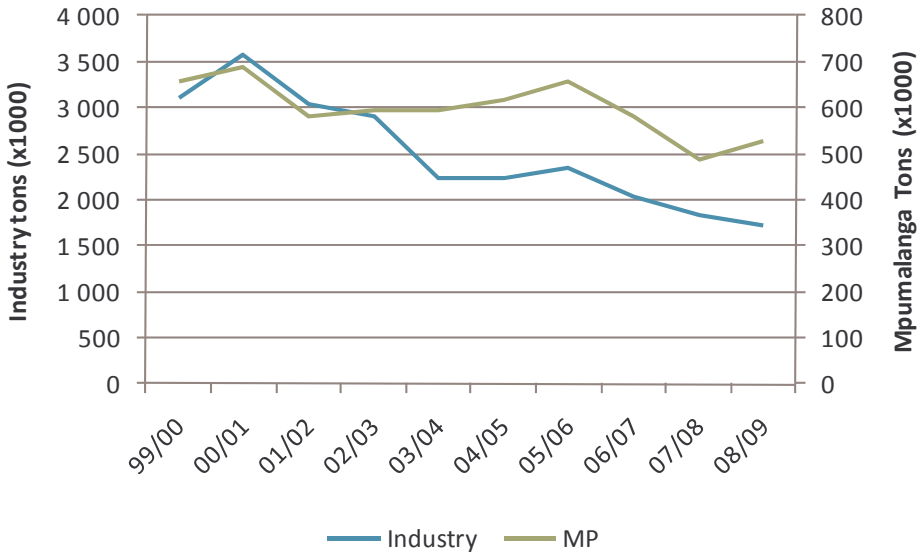


Figure 2. Decline in small-scale grower yields in Mpumalanga and the industry (1999 to 2009).

When considering a turnaround strategy, too much emphasis is frequently placed on technical solutions, such as replant and contractor programmes (Denison and Manona, 2007). While these are clearly necessary, a much broader holistic strategy, focusing on institutional change along with technical interventions, is required.

Project approach

In response to declining production in the area, the Mpumalanga Cane Growers' Association and Tsb Sugar have initiated a project to develop a turnaround strategy. The aim of the initiative is to ensure that there is systemic change that contributes positively towards the long-term sustainability of growers.

The project was divided into two phases. Phase 1 focused on gaining a better understanding of the challenges and possible solutions, while Phase 2 concentrated on implementation of solutions. Phase 1 was also used as an important communicating phase to align stakeholders and provide opportunity for growers to make input into planning. The following principles were agreed upon at the start of the initiative:

- No loss of land rights.
- No loss of water rights.
- Grower-led and ownership of solutions.
- Voluntary participation.
- Changes must be systemic and contribute to long-term sustainability.

A team approach was taken to address the challenge. A multi-disciplinary team was compiled to guide and manage the project through a steering committee. A dedicated project manager was assigned to drive the initiative. The following organisations are part of the team:

- Mpumalanga Cane Growers' Association.
- South African Cane Growers' Association.
- Tsb Sugar.
- Booker Tate.
- Akwandze Agricultural Finance.

The team was structured as shown in Figure 3.

Figure 3. Heirarchy of Mpumalanga small-scale grower steering committee for sustainability project.

By establishing a multi-disciplinary team, effort was made to cover all aspects that relate to the successful outcome of the initiative. It also provided for a wide variety of ideas to be generated. The team approach also contributed toward buy-in and improved alignment from a diverse group of stakeholders – especially during the implementation phase of the project.

The team consists of industry stakeholders who are experts in their relevant fields. One important element was, however, lacking – a social specialist. To drive systemic institutional change, a strong social facilitation element was required to take growers through a change management process. An outside consultancy, Lima Rural Development Foundation, was contracted to undertake the social and institutional facilitation component.

The decision to contract an outside specialist agency was to ensure that growers were receiving 'unbiased' assistance in determining their future. Lima was identified because of their track record of working in communal areas. This is especially important when dealing with *Amakhosi,* through whom particular institutional changes had to be sanctioned.

Initial project seed capital was provided by Tsb Sugar to get project management in place. A key deliverable was raising of grant funding to support the institutional change process. Grant funding support was received from the Shared Growth Challenge Fund and the South African Sugar Association. A total of R4.8 million in grant funding was raised to support institutional change facilitation from July 2009 to June 2012.

The turnaround strategy has two core components:

1. Facilitation of institutional change.
2. Scheme revitalisation: rehabilitation of irrigation infrastructure and crop re-establishment.

Institutional change
Proposed institutional changes focus on growers considering new operating models at irrigation project level. Good irrigation project performance requires:

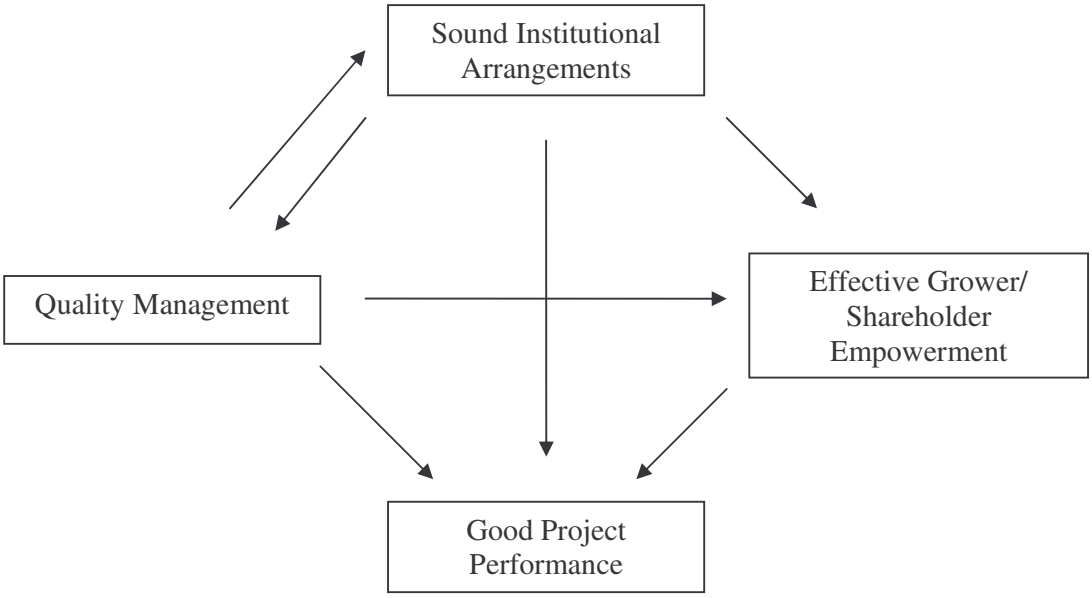
- Growers to select and establish a sound legal entity (operating model).
- Quality management.
- Viable business/es that generate positive returns.

All three of these elements need to be present to ensure good project performance as outlined in Figure 4.

Institutional arrangements vary according to the operating model selected. In broad terms, there are four main characteristics that should be present to ensure sound institutional arrangements:

a) Transparency. Records and accounting systems need to be transparent and available to all members or shareholders.
b) Accountability. Chairpersons, directors and managers need to be accountable to shareholders or members through regular feedback.
c) Returns and voting rights must be proportional to investment.
d) Entity must be credit worthy in order to raise equity and debt finance.

Transparency and accountability ensure that there is good corporate governance.



Source: Adapted from Knight *et al.* (2003)

Figure 4. Institutional linkages.

Institutional changes (operating models) being implemented at irrigation project level focus on ensuring that the impacts of transaction costs and group dynamics have limited effects on the operation of the schemes. Institutional reforms also focus on creating opportunities for the 'better' growers to increase the size of their businesses. The following institutional changes are currently being facilitated:

1. Introduction of project governance rules to strengthen the role of project committees and ensure that irrigation schemes are well maintained. Proposed changes include delegation of authority to a Water Supervisor to run and maintain the scheme within an allocated budget. Levels of expenditure and authority are also agreed upon. In order to eliminate 'free riding', growers agree to ensure contribution to all irrigation scheme running costs. Sanctions are put in place where underperforming growers are unable to make contributions and fall into arrears with payments. Broad sanctions agreed include the Project Committee appointing a manager to improve production in the field(s) and recover outstanding payments. Once payments are up to date, management of the field is returned to the grower.

2. Introduction of a land rental market. Land currently has no opportunity cost for growers who abandon their land or are underperforming. The introduction of a land rental market enables growers to make decisions about the use rights on their land. Instead of leaving land fallow, growers have an incentive to lease their land out and receive rental income. Rental transactions also provide opportunities for top growers to expand their businesses and therefore take advantage of scale economies. Research conducted by Crookes (2002) confirms advantages of a rental market. Crookes found that emerging farmers were engaging in numerous rental transactions and 'consolidating' larger areas of land.

3. Formal management contracts. There are instances where growers prefer not to lease out their land but enter into management agreements with better performing growers.

4. Consolidation into estates.

The proposed operating models are not new and radical interventions. To a limited degree, some of the proposed models have already been taking place informally. This assisted in ensuring that the proposed institutional changes would be more easily accepted by growers. The institutional change process also recognises that there could be a mix of operating models at a particular project, depending on the choice of growers. Certain growers could enter into rental transactions, while another group might decide to 'consolidate' and employ a manager.

Facilitation methodologies comprise three broad phases:

1. Growers are taken through a participatory rural appraisal (PRA) exercise. This allows growers to reflect on their challenges and look for solutions in an interactive way. PRA sets the groundwork from information gathered to assist growers in identifying solutions.
2. The next phase is taking growers through a programme known as 'Training for Transformation'. Focus is on leadership, governance and need for change. This phase assists growers in taking ownership of proposed institutional changes.
3. Planning phase. During this phase institutional changes are agreed upon (e.g. legal entity), and new constitutions are developed. Implementation of institutional changes is also agreed upon. Projects are currently in this phase. Implementation of new institutions will be the topic of a future SASTA paper.

Scheme revitalisation

Aging and poorly maintained irrigation infrastructure has contributed to declining yields. It is evident from Figure 2 that yield decline began in the 2001/02 season. This was created by an artificial drought. The floods experienced in 2000 damaged irrigation infrastructure, and many of the projects were without irrigation for the 2001 season. The resultant damage began the declining yield spiral which has proved difficult for growers to pull out of due to limited resources. It is estimated that approximately R100 million is required to rehabilitate the irrigation infrastructure. Mpumalanga Department of Agriculture, Rural Development and Land Administration has put a five year budget in place to support irrigation system revitalisation.

Cane in approximately 42% of fields is 10 years of age or older, with an average yield of 56 t/ha. The high ratoon age and low yield is an indication that many growers are reluctant to invest in crop re-establishment. Generally, grower perception is that a meagre return from maintaining a low yielding farm is preferable to the risk of re-investment, for the following reasons:

- Financiers normally charge growers interest premiums and accelerate repayment schedules in order to cover risk. Thus, although yields are higher, the higher interest payments and accelerated repayment schedules erode these returns and create a further disincentive to invest.
- Management capacity and unreliable irrigation infrastructure often result in accelerated plant crop yield decline. Lower yields impact on returns from the replanting investment.

Lessons learnt

This section highlights lessons learnt to date in facilitating institutional changes amongst irrigation projects in Mpumalanga. This is by no means a comprehensive list, but rather outlines certain themes that require consideration when embarking on a similar process.

Dynamic process
Institutional change is a dynamic process. As information is shared with growers, stakeholders and other interested parties, individuals begin making more informed decisions. There are also potential losers, due to proposed institutional changes. Community dynamics are therefore continually changing, and the process needs to be adaptive and dynamic to meet these changes. Process review is essential to ensure that there is continual improvement and refinement.

Each irrigation project is unique, and there is no 'blueprint' for implementing broad changes. A custom solution needs to be sought and implemented for each community.

Transparent and consultative
All dealings with growers should be transparent and consultative. Growers must take ownership of changes facilitated. If institutional change is imposed there is a strong likelihood that it will not result in systemic change and therefore will not be long-term. In order to ensure buy-in and ownership, small incremental steps need to be taken. Literacy levels can be challenging and, to overcome this, a cartoon series outlining the broad facilitation process was developed. The process should be voluntary.

Build momentum
Institutional change is not a 'quick fix' process, as it should result in systemic change. It is therefore advisable to initially select projects with quick wins that can allow for momentum to be built and precedents set. Identify champions within the grower community and stakeholders who will assist in driving the changes. Momentum often comes from small incremental changes. This takes time and patience. Celebrate small victories and do not allow setbacks to slow momentum. Learn from setbacks and challenges, and refine processes. Once initial institutional inertia is overcome, future changes and buy-in become easier and quicker.

Communication
It is important from the outset of such an initiative to identify all stakeholders and interested parties. In this type of process it is not possible to over-communicate. Communication between all parties is essential, and will ultimately ensure that all stakeholders are aligned and contributing to the same objectives.

A team approach was taken to ensure buy-in and alignment of stakeholders. It was, however, necessary to establish stakeholder forums. Proposed institutional changes, models and processes were discussed at these forums in an attempt to secure buy-in. This is a challenging process as views and perceptions can undermine progress. A major obstacle that needed to be overcome was that certain stakeholders viewed the initiative as threatening their job security. Careful and deliberate communication is required.

Tribal authorities or *Amakhosi* are important stakeholders. Any proposed institutional changes should be discussed with them. Securing tribal authority support has assisted in speeding up

institutional change. For example, a particular *Nkosi* may be actively encouraging underperforming growers to lease out their fields. This is an area that requires specialist intervention, as cultural practices need to be respected when dealing with *Amakhosi*.

Funding

Funding is central to any rehabilitation strategy. Funding should be raised (internally or externally) for facilitating institutional change, as well as for infrastructure and crop rehabilitation. Grant funding has been raised for facilitating institutional change in Mpumalanga. Depending on the extent of the project, the cost estimates in Table 1 can be used as a rough guide for facilitation costs.

Table 1. Estimated facilitation costs.

Item	Annual cost (R)
Facilitator – including travel	600 000
Management support	120 000
Total	720 000
Number of projects/year	4
Cost per project	180 000

In their medium-term planning, the Department of Agriculture, Rural Development and Land Administration has provided R125 million for rehabilitation of irrigation infrastructure. Rehabilitation of the crop is being financed through Akwandze Agricultural Finance.

Securing of grant funding is generally a medium-term process (2-3 years), and should be planned well in advance where possible.

Conclusion

Small-scale growers in Mpumalanga face challenges regarding long-term sustainability. This is not limited to Mpumalanga, but is a reality in the entire sugar industry. A sustainability project was initiated by growers to address challenges. The three major causes of declining productivity have been identified as:

- Growers do not have an incentive to invest due to low returns.
- Low returns are the result of scale economies. Farm sizes are small, averaging 7 ha.
- Collective action or group dynamics impacts on the maintenance of irrigation infrastructure. Decision-making is often lethargic and poor within large groups. This has resulted in communal irrigation infrastructure being poorly maintained.

A holistic approach has been adopted to address long-term sustainability issues. Past experience has revealed that long-term sustainability is dependent not only on technical solutions, such as rehabilitation of irrigation infrastructure, but requires institutional innovation to underpin and support technical initiatives. Proposed institutional changes that are currently being facilitated are based on predictable changes that growers are agreeing to and, more importantly, taking ownership of. Existing constitutions are being improved and made more business-like, while the facilitation of the rental market is based on creating

market certainty by broadening use rights. This was achieved by the *Amakhosi* sanctioning a rental market.

A project management approach has been used to drive the sustainability initiative. A multi-disciplinary team was assembled to ensure that all aspects are covered and to provide wide ranging inputs and solutions. It has been necessary to contract a team of social specialists to undertake the social and institutional facilitation. This is a specialist area that is currently not being covered by sugar industry service providers. Serious consideration needs to be given as to whether and how social facilitation capacity should be developed within the industry. Given the extent of land claims and associated social dynamics, the specialist area of social facilitation becomes more important.

This initiative provides growers in Mpumalanga with a unique opportunity to determine a new future. Institutional change is a slow adaptive process that should lead to systemic change. It is systemic change that alters patterns of behaviour and incentives, and should ultimately contribute to long-term sustainability. The process, however, requires commitment and resources.

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