Towards a theoretical framework for sustainable smallholder irrigation farming: A case study of Lusip smallholder sugar-cane farmers in Swaziland

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The government of Swaziland has fully recognized the role of smallholder irrigation development in poverty reduction hence intensive investments have been made to empower rural smallholder farmers through irrigation. The Lower Usuthu Irrigation Project (LUSIP) is one of the projects which strive to empower 2600 rural poor households to attain an improved quality of life and be able to sustain it. The study sought to interrogate the development model used at LUSIP and determine whether it guarantees sustainability of the development as well as to inform policy makers on the social and economic issues associated with the project. This was a case study using a qualitative research design where a purposive sample of the total operational farmers companies was selected for interviews. It can be concluded that the smallholder development under LUSIP has a potential to contribute to the overall agricultural contribution to the Swazi economy. The study unfolded issues around the farmer companies remaining in business and not being properly corporatized as well as uncertainty surrounding the land ownership and user rights though. Three broad recommendations include; corporatization of the farmer companies in a true sense, reviewing the participation-for-all model that is currently being used and the finalization of the National Land Policy by the government.

Key words: Sustainable agriculture, smallholder irrigation, productivity, poverty reduction.

INTRODUCTION

Agriculture is the backbone of the Swazi economy and is critical for achieving the overall development objectives of the country. The agriculture sector of Swaziland is acutely dualistic. A dynamic commercial sub-sector established on Title Deed Land (TDL) that occupies 26% of the land, holds an estimated 90% of available irrigation infrastructures, and uses modern technologies to produce mainly cash crops. A traditional sub-sector based on communal tenure in the Swazi Nation Land (SNL) involves semi-subsistence smallholder agriculture with...
communal grazing. Majority of the population in Swaziland live in farm households located on communal Swazi Nation Land (SNL) and most of them (70%) are engaged in low-productivity subsistence agriculture and animal husbandry (GoS, 2005a). Agriculture sector accounts for about 9% of the GDP and employs about 70% of the population.

Agriculture is far more important for Swaziland’s population and for national economic development than its contribution to Gross Domestic Product (GDP) suggests. Crucially, agriculture plays a key role in the lives of the majority of the population, since most households rely on agricultural output as a major source of income and food security, either as small-scale producers or as recipients of income from employment on medium and large-scale farms and estates (GoS, 2005b).

The Government of Swaziland (GoS) has recognized the role of smallholder irrigation development as a key poverty reduction intervention. The Swaziland Water and Agricultural Development Enterprise (SWADE) was established to empower rural smallholder farmers to realize poverty reduction through irrigation. SWADE helps farmers establish irrigation schemes that use water as a catalyst for developmental change. The schemes are what farmer managed with sugarcane being the main cash crop and other crops include field crops such as maize, sweet potatoes and vegetables.

The schemes employ labour from members, non-members and from other contract sources especially for specialized jobs which require special skills and equipment such as harvesting and haulage.

The Lower Usuthu Small Holder Irrigation Project (LUSIP) is one of Swaziland Water and Agricultural Development Enterprise (SWADE) projects. The physical implementation of the Project started in the year 2005 following the social mobilization activities which started earlier. The Project objective is the empowering of 2600 rural poor households within the project area at Siphofaneni to attain an improved quality of life and be able to sustain it. This is to be achieved through commercial irrigated agriculture. The project is founded on sound environment, social and business principles (IFAD, 2001a).

Within seven years of existence, the project has developed an environment compliant bulk water infrastructure capable of irrigating 11 500 ha. The project has, through a sound social system, mobilized the community into business groups ready to take advantage of the harnessed water for the betterment of their lives. As a result forty-one business groups have formed in the project development area (PDA) with a total of 1065 households currently participating. These groups combined have an area ownership of about 2000 ha and individually, they significantly vary in size, with the smallest farm being 19ha and the biggest being 119ha. Their core business is sugar cane production which is market driven (ADEMU, unpublished). Swaziland’s sugar industry is a very robust and highly organized in terms of technology, research and support. As such Swaziland has a good track record of being among the top 10 low cost producers of sugar globally.

The development of these businesses is based on a sound technical system aimed at ensuring financial viability. They are premised on an excellent funding structure which is 70% grant funding (European Union and Swaziland government) and 30% loan funding. The 70% grant funding covers the whole of farm construction and the 30% constitutes operational cost. The 30% is amortized over the payback period and that allows the business a good cash-flow. The payback period of these businesses is 6 years and that is favorable to loan funders (ADEMU, unpublished).

There has been much debate within the country concerning the long term sustainability of the new smallholder irrigation schemes, looking at the recent changes in the world sugar prices and the escalating developmental and operational costs. Studies have shown that too often, after a seemingly successful take-off period, declining yields, diminishing returns, the growing indebtedness of the farmers, and hence their loss of interest, lead to the failure of the schemes. The blame for failure is usually placed on the farmers, but invariably the true cause is an overall lack of viability of the project design itself, a design that did not permit farmers to adopt irrigated cropping as an integral component of a new, self-sustaining, balanced farming system despite all the huge investments by the national and international stakeholders on smallholder irrigation. Manyatsi (2005); Malaza and Myeni (2009) reported that the irrigation schemes are faced with the challenge of ensuring long-term sustainability. As a result, many of the irrigation schemes are not performing up to the expected performance hence the continued decline in agricultural productivity especially in the rural areas. The challenges range from technical level, economic level, social level to ecological level.

On the other hand, the beneficiaries are of the opinion that SWADE implementing strategies or processes do not empower them to a level that they can carry on after the support of the SWADE comes to an end. SWADE has laid down sets of policies and procedures to be followed in terms of project development which the farmers have got to adopt. Most of the policies are adapted from government policies and procedures. There is a notion that the project was conceived from outside with little or no participation of the local communities prior to implementation.

Botes and van Rensburg (2000) reported that in some instances, community participation is not a genuine attempt to empower communities to choose develop options freely, but rather an attempt to sell preconceived proposals. They also state that the participation processes often begin only after projects have already been designed with the attempt not to ascertain the
outcome and priorities but rather to gain acceptance for an already assembled package. The study seeks to determine whether the development models/strategies used in LUSIP will ensure sustainability of the smallholder farmers post LUSIP support as a basis for policy and strategy improvement.

METHODOLOGY

Study area

The study was conducted in LUSIP area which is located in the Western Lowveld of Swaziland. The project was built on the successes of achieved smallholder irrigators in the Lower Usuthu Basin and is planned to take advantage of the strong market linkages in the sugar industry, while further developing available linkages in the cotton, food crop and livestock sub-sectors. LUSIP involves the diversion, storage and delivery of surplus summer flows from the Usuthu river to permit smallholders to irrigate a total of 11 500 ha of land. This took the construction of a low weir at Bulungapoort, a 23 km feeder canal leading to the 155 m³ Lubovane Reservoir, a North Canal designed to serve 2000 ha, and a South Main Canal to irrigate some 4 500 ha making the total irrigable area of 6 500 ha (Phase I) in the Lubovane block (Figure 1). Phase II will consist of an extension of the South Main Canal into the Matata block to irrigate a further 5000 ha (IFAD, 2001a).

The total gross irrigable area for this study is 6 500 ha. This area is bordered to the north by the Usuthu River and to the south, west and east approximately by the 220 m contour line (Figure 1), the project development area (PDA) covers seven chiefdoms namely; Dlamini, Mamba, Ngcamphalala, Gamedze and Shongwe, Lesibovu and Mphumakudze but to-date only two have been have been developed and these are Ngcamphalala and Gamedze hence this study covered only farmer companies (FCs) in the Ngcamphalala and Gamedze chiefdoms that had already started receiving proceeds from the first sugarcane crop that was planted in 2010. The thirteen FCs are discussed briefly in Table 1.

Sampling technique and size

A purposive sampling was used because the thirteen (13) companies were considered to be typical and representative of the population since they had already harvested once and they were being considered to be weaned-off from the LUSIP guidance (technical support on farm and business management and extension). The targeted sample size was at least 38% of population. The population was 34 operational FCs with the 62% only just harvesting or waiting to harvest their first crop. The
Table 1. A Summary of the Thirteen FCs.

<table>
<thead>
<tr>
<th>Farmer company</th>
<th>Sugar planted Ha.</th>
<th>No. of members</th>
<th>Chiefdom</th>
<th>EU Funding 'as built' E</th>
<th>Govt. funding E (Design not 'as built')</th>
<th>Total devt. Cost E</th>
<th>Loan amount E</th>
<th>Loan period years</th>
<th>Cost / ha. of 'as built' area E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setamiphilo eNgonini</td>
<td>36.20</td>
<td>26</td>
<td>Madlenya</td>
<td>2 026 552.00</td>
<td>1 054 755.00</td>
<td>3 081 307.00</td>
<td>719 752.00</td>
<td>6</td>
<td>83 959.32</td>
</tr>
<tr>
<td>Mganyaneni</td>
<td>59.50</td>
<td>30</td>
<td>Madlenya</td>
<td>3 949 825.00</td>
<td>808 266.00</td>
<td>4 758 091.00</td>
<td>1 331 545.00</td>
<td>6</td>
<td>79 301.52</td>
</tr>
<tr>
<td>Sibhotela Investment</td>
<td>55.03</td>
<td>35</td>
<td>Madlenya</td>
<td>3 001 449.00</td>
<td>859 492.00</td>
<td>3 860 941.00</td>
<td>1 300 294.00</td>
<td>6</td>
<td>74 248.87</td>
</tr>
<tr>
<td>Nyoni Khalakahle</td>
<td>49.80</td>
<td>25</td>
<td>Madlenya</td>
<td>2 828 749.00</td>
<td>946 496.00</td>
<td>3 775 245.00</td>
<td>1 178 698.00</td>
<td>6</td>
<td>72 740.75</td>
</tr>
<tr>
<td>Kuselangeni</td>
<td>54.39</td>
<td>36</td>
<td>Madlenya</td>
<td>2 848 692.00</td>
<td>985 524.00</td>
<td>3 834 216.00</td>
<td>1 031 023.00</td>
<td>6</td>
<td>69 460.43</td>
</tr>
<tr>
<td>Sukumani Ngonini</td>
<td>46.20</td>
<td>24</td>
<td>Madlenya</td>
<td>2 422 607.00</td>
<td>922 582.00</td>
<td>3 345 189.00</td>
<td>928 758.00</td>
<td>6</td>
<td>68 548.95</td>
</tr>
<tr>
<td>Imbali YaMadlenya</td>
<td>55.98</td>
<td>29</td>
<td>Madlenya</td>
<td>2 463 813.00</td>
<td>927 306.00</td>
<td>3 391 119.00</td>
<td>1 109 278.00</td>
<td>6</td>
<td>57 282.42</td>
</tr>
<tr>
<td>Bamoyamunye</td>
<td>58.70</td>
<td>57</td>
<td>Ngcamphalala</td>
<td>-</td>
<td>3 892 646.00</td>
<td>3 892 646.00</td>
<td>1 571 422.00</td>
<td>6</td>
<td>66 314.24</td>
</tr>
<tr>
<td>Ngcwaleni Farmers Limited</td>
<td>111.10</td>
<td>64</td>
<td>Ngcamphalala</td>
<td>-</td>
<td>6 446 742.00</td>
<td>6 446 742.00</td>
<td>1 878 149.00</td>
<td>6</td>
<td>58 026.48</td>
</tr>
<tr>
<td>Matimavu</td>
<td>85.70</td>
<td>86</td>
<td>Ngcamphalala</td>
<td>-</td>
<td>4 542 838.00</td>
<td>4 542 838.00</td>
<td>1 655 131.00</td>
<td>6</td>
<td>53 008.61</td>
</tr>
<tr>
<td>Mpondweni Investment</td>
<td>84.00</td>
<td>72</td>
<td>Ngcamphalala</td>
<td>-</td>
<td>4 290 941.00</td>
<td>4 290 941.00</td>
<td>1 723 177.00</td>
<td>6</td>
<td>51 082.63</td>
</tr>
<tr>
<td>Kuhle Kutentela</td>
<td>54.00</td>
<td>82</td>
<td>Ngcamphalala</td>
<td>-</td>
<td>2 662 576.00</td>
<td>2 662 576.00</td>
<td>1 167 708.00</td>
<td>6</td>
<td>49 306.96</td>
</tr>
<tr>
<td>Mgulugulu and Sihlase (M&amp;S)</td>
<td>81.60</td>
<td>43</td>
<td>Ngcamphalala</td>
<td>-</td>
<td>3 403 555.00</td>
<td>3 403 555.00</td>
<td>1 482 107.00</td>
<td>6</td>
<td>41 710.23</td>
</tr>
</tbody>
</table>

Data analysis

Data was recorded, transcribed, coded, analyzed and interpreted according to the various dimensions mentioned in the study design. The projects were demographic characteristics of respondents, socio-economic impact, social acceptability of the project, productivity, risk reduction and the institutional and technical maintenance data was analyzed using the Statistical Package for Social Sciences version 17.0.

RESULTS AND DISCUSSION

Demographic information for farmer groups and respondents

The survey revealed that there are more males (66.7%) than females (33.3%) involved in the project. Secondary data from SWADE reports reveal that only 39% of the shareholders are females. This reflects a gender imbalance in that the males are the majority yet the development model encourages women and youth to form an integral part in the development. Majority (70%) of the people interviewed were between the ages of 26 to 45 years with 22% being older than 45 years and only 8% younger than 25 years. These figures demonstrate that migration to industrial towns and cities for employment is now reduced when you consider that the energetic age group is the majority in the sample.

Socio-economic contribution of the project

Gross revenue

The FCs had budgeted to sell their sucrose to the mill at E1800.00 per ton at project planning stage and yield estimates were pegged at 100 tones
Table 2. FCs' Performance in the first two seasons of harvest.

<table>
<thead>
<tr>
<th>Farmer company</th>
<th>Hectares</th>
<th>Yield TCH</th>
<th>% sucrose</th>
<th>Yield TCH</th>
<th>Price / T</th>
<th>Rev / Ha</th>
<th>% sucrose</th>
<th>Yield TCH</th>
<th>Price / T</th>
<th>Rev / Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ngcamphalala FCs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M&amp;S</td>
<td>81.60</td>
<td>133.63</td>
<td>12.50</td>
<td>16.70</td>
<td>2252</td>
<td>37615</td>
<td>127.28</td>
<td>11.95</td>
<td>15.20</td>
<td>2700</td>
</tr>
<tr>
<td>Matimavu</td>
<td>86.30</td>
<td>108.80</td>
<td>13.60</td>
<td>14.80</td>
<td>2252</td>
<td>33321</td>
<td>92.00</td>
<td>12.69</td>
<td>11.67</td>
<td>2700</td>
</tr>
<tr>
<td>Kuhle Kutentela</td>
<td>54.00</td>
<td>166.02</td>
<td>13.56</td>
<td>22.51</td>
<td>2252</td>
<td>50695</td>
<td>108.26</td>
<td>12.48</td>
<td>13.51</td>
<td>2700</td>
</tr>
<tr>
<td>Ngcwaleni</td>
<td>111.10</td>
<td>118.94</td>
<td>13.32</td>
<td>15.84</td>
<td>2252</td>
<td>35676</td>
<td>102.98</td>
<td>12.45</td>
<td>12.82</td>
<td>2700</td>
</tr>
<tr>
<td>Bamoyamunye</td>
<td>58.70</td>
<td>98.82</td>
<td>14.30</td>
<td>14.13</td>
<td>2252</td>
<td>31822</td>
<td>98.94</td>
<td>13.24</td>
<td>13.10</td>
<td>2700</td>
</tr>
<tr>
<td>Mpondweini</td>
<td>84.40</td>
<td>115.27</td>
<td>13.10</td>
<td>15.10</td>
<td>2252</td>
<td>34005</td>
<td>101.82</td>
<td>13.71</td>
<td>13.95</td>
<td>2700</td>
</tr>
<tr>
<td>Total / Weighted average</td>
<td>476.10</td>
<td>121.83</td>
<td>13.36</td>
<td>16.28</td>
<td>2252</td>
<td>36662</td>
<td>105.05</td>
<td>12.71</td>
<td>13.36</td>
<td>2700</td>
</tr>
</tbody>
</table>

| Madlenya FCs          |          |           |           |           |           |         |           |           |           |         |
| Sibhotela             | 52.20    | 105.84    | 12.80     | 13.55     | 2252      | 30508   | 91.08     | 12.96     | 11.81     | 2700    |
| Imbali                | 55.98    | 93.33     | 12.82     | 11.96     | 2252      | 26944   | 91.14     | 13.07     | 11.91     | 2700    |
| Nyoni Khalakahle      | 49.80    | 103.60    | 12.80     | 13.26     | 2252      | 29862   | 98.81     | 13.41     | 13.25     | 2700    |
| Kuselangeni           | 55.98    | 105.30    | 13.60     | 14.32     | 2252      | 32249   | 103.23    | 13.45     | 13.89     | 2700    |
| Sitamimphilo          | 36.20    | 98.50     | 14.30     | 14.09     | 2252      | 31719   | 97.76     | 14.07     | 13.75     | 2700    |
| Mganyaneni            | 59.00    | 119.20    | 13.60     | 16.21     | 2252      | 36506   | 126.79    | 13.65     | 17.31     | 2700    |
| Sukumani              | 42.08    | 100.00    | 14.10     | 14.10     | 2252      | 31752   | 91.60     | 13.63     | 12.48     | 2700    |
| Total / Weighted average | 351.24  | 104.23    | 13.43     | 14.00     | 2252      | 31529   | 100.87    | 13.49     | 13.61     | 2700    |

Cane per hectare (TCH) at 14% sucrose percentage. Presented in a simpler way the budgeted sucrose production was 14 tones sucrose per hectare (TSH). However the sucrose price at their first harvest was E2252.00 per ton which meant that the gross revenue per hectare was E6328.00 more than budget. The increase in the sucrose price resulted in 61.1% of the respondents saying the gross revenue received was above their expectation with 27.8% saying it was below what they had expected. Possible reason for the dissatisfaction on the revenue received may be the low yields achieved by some of the FCs as three of them recorded yields below the target 14 TSH as shown in Table 2. The second harvest performance is also shown in the same table. The sucrose price rose to E2700 per ton and this compensated for the drop in yields as the gross revenue remained fairly the same as the previous season. The drop in yields could be attributed to the fact that some of the cane was harvested before reaching the recommended 12 months.

**Monthly income**

Monthly disposable income per household has also improved since the project started as 88.9% of the sampled participants earned less than E900 per month before the start of the project. But after just one year since the start of the project, that earning bracket of E900 has decreased to 58.4% with 41.6% now earning a monthly income of above E901 per month (Figure 2).

Even though the sugarcane crop is not for consumption per se, 27.8% of the respondents reported that the earnings from the sugarcane farming is enough to feed families whilst 88.9% and 77.8% believe that LUSIP has so far contributed to the improved livelihoods and improvement of the standard of living as well respectively. So far the development model is premised on participation for all community members and 100% of the participants believe...
that everyone is benefitting equitably, albeit for now. It was expressed that the project has contributed positively to enable the beneficiaries to have ability to buy food (45%), build homes (19%), ability to buy luxuries (31%) and 5% indicated that they no longer need to rely on their livestock to survive.

**Social acceptability of LUSIP**

A socially responsible agriculture development project is one that equitably meets basic human food and fiber needs, provides economic opportunity, supports self-determination, and ensures social equity for both current and future generations. During the upstream development and even before the farm development started, community members have been given job opportunities. The FCs at inception decided that they would give first preference to shareholders with regard to employment on the farms. A total of 86% of the sampled FCs indicated that they have shareholders under their employ with only 13.9% of the FCs not having shareholders on their payroll. All the FCs have employees who are not shareholders but are either from the PDA or outside the PDA, though the numbers are less than ten.

**Participation in FCs**

On the membership, all the FCs required members to be household representative, resident with or without user rights to land and be from the same locality. A total of 33.3% of the FCs that participated in the survey reported that they have shareholders who are below the age of 18 years and such shareholders are representative of their households. Findings on the groupings were very positive as 69.4% of the respondents rated the groupings as good or very good. However, contrary to the good rating of the groupings 61.1% said they would do the groupings differently if given another chance while 66.7% still said they believed that the farmer groups will remain together in the future.

**Land ownership and traditional authorities involvement**

All the FCs are situated on SNL and the respondents are aware that paying allegiance to their respective chiefs is very crucial to the sustainability of their projects. Majority (88.9%) of the respondents believed that the land tenure of the country is good and does guarantee sustainability of the development. Reasons for believing in the land tenure were that the chief can fix land disputes quickly, the TAs facilitate better farm management and that tenure systems prevents outsiders (people from outside the PDA) from coming to take their farming business. The chief’s interference on the day-to-day operations of the FCs, the demanding of royalties and the fact that the chief has the power to temper with the shareholding or membership are some of the reasons some (11.1%) of the respondents responded negatively to land tenure system in PDA.

**Risk reduction**

**Financial risks**

All the FCs received grant finance from either the GoS or the European Union (EU). The availability of the grant finance cannot be guaranteed and signs that these funds dwindling are already starting to show. This is consistent
with the observation made by Wall and Miller (1995) who reported that global indebtedness in the developed countries reduces capital investments in development assistance and technical aid to developing countries. The high interest rates charged by the commercial financial institutions (CFIs) are not helping the farmers. Presently, the CFIs charge 15.5% interest on the loans which is too high when compared to what the big estates/businesses are charged.

Price and market risks

According to Boehlje and Eidman (1984) all factors leading to unpredictable shifts in the supply and demand of inputs and products are sources of prices uncertainty. Movements of a seasonal, cyclical, and trend nature are predictable to some extent, but the inability of the farmer to predict these prices accurately in making decisions represents a business risk. The marketing of sugar in Swaziland is highly centralized since the sugar industry is managed by the Swaziland Sugar Association (SSA) formed by all millers and growers. Once cane is delivered to the mill, it becomes the property of the SSA which owns and markets all sugar and molasses produced in the country. The Swaziland Sugar Industry Quota Board constituted by representatives of millers, growers and government officials, allocates production quotas to growers and assigns them to the respective mills. Sugarcane produced by each farmer is hauled by contractors from the farm gate to the mill where it is weighed and recorded. A sample of the cane juice is taken from the farmer’s produce to determine the sucrose content. Both cane weight and sucrose content are used to determine the price and overall sugar production of each sugarcane grower. After the sale of sugar, the proceeds are shared between the farmers and the mill at a ratio of 67.5% to the farmers and 32.5% to the mill in order to cover its milling cost (ADB, 2003). The farmers are aware that as sugarcane producers, they do not determine the price of their produce instead they are only price takers. Although, they are only price takers, 50% indicated that they are happy with the current sucrose price.

LUSIP has put emphasis on diversifying the crop mix in the irrigated blocks to reduce risks pertaining uncertainty with sugar cane prices. This matches the commitment in government policy to prevent irrigated smallholders from concentrating entirely on sugar. While the crop is currently fetching good prices, its future viability cannot be assured, given continuing uncertainty about access to the European Union market that currently imports half of Swaziland’s production. Growing a mix of crops on irrigated land is also advisable for agro-ecological reasons; and for smaller and less prosperous companies it enhances the cash flow if one or two harvests of other crops can be marketed each year in addition to the main sugar harvest.

LUSIP has therefore made commendable progress with two categories of irrigated production and has achieved only 17% of the target for ‘alternative cash crops’ and 40% for ‘commercial gardens’. The former category focuses entirely on the market and has been introduced by three FCs so far. Two are growing bananas, dry maize and beans. The third is producing cassava. The latter category comprises a mix of crops for the market and crops for FC members’ home consumption. It should make a good contribution to the food security of those whose FCs engage in it; but the direct impact on the overall quality of household food consumption in the PDA is obviously limited (ADEMU, unpublished).

Production risks

The variation in the production level resulting from factors beyond the farmer’s control including weather, pests, genetic variation, changes in the regulations on use of pesticides and timing of production practices represents a major source of business risk. In LUSIP production, risk can be reflected in the variability of yield per hectare as 29% rated failure to follow Best Management Practices (BMPs) top of the list, 26% attributed it to poor extension service, 24% thought that interference in the day-to-day running of the FCs by shareholders and 21% blamed poor services providers or inputs suppliers. The shareholders interference is the result of the FCs failing to separate ownership from management. The shareholders have a notion that since they are the owners of the farming business then they must be involved in the management of the business. The findings in the study are in line with Sunter (2003) observation that in farming the separation of ownership from management does not exist. This indicates that even in the study area, the agri-business has not been corporatized as evidenced by the failure to follow BMPs due to shareholders’ to management decisions. This leads to delayed timely execution of farm activities.

Socio-economic risks

At farmer groups’ formation stage, shareholding was planned to be 2 ha per shareholding. After renunciation of land by the group members, the chief allocated land to the newly formed farmer group based on the available land (gross) in relation to the members. But as the project progressed to implementation; the turnout of irrigable land by the group members, the chief allocated land to the newly formed farmer group based on the available land (gross) in relation to the members. But as the project progressed to implementation; the turnout of irrigable land (gross) in relation to the members. But as the project progressed to implementation; the turnout of irrigable areas were in most cases smaller than the gross area. This resulted in the decrease in the shareholding ratio. A high proposition (80.6%) of the sampled farmers indicated that they are not happy with the shareholding and would consider buying shares from other FCs given the opportunity. Figure 3 shows that 94.5% of the surveyed FCs had shareholding ratio of at least 2 ha per SH at group formation stage that has since decreased as
the shareholding statistics is now standing at 50% of the surveyed FCs with a ratio that is below 2 ha per SH.

### Institutional and technical maintenance

#### Level of participation

The government of Swaziland assigned the International Fund for Agricultural Development (IFAD) to design and implement the project to ensure that the investment bring about maximum enduring benefit for the rural poor. The model adopted was that smallholders will form groups or associations of about 20 people each and jointly venture into crop and livestock farming sharing the establishment costs, work and income on an equitable basis. Beneficiaries were responsible for the development, preparation and implementation of their work plans after receiving training, skills upgrading and other capacity-building that enable them to manage their enterprises. In addition, they are responsible to take corrective and preventive measures against risks to their health and the health of their family members; and they will participate in the sustained maintenance of flora, fauna, land/soil and other natural resources (IFAD, 2001b). The findings of the study indicates the model promoted participation of the beneficiaries as 58.3% believed that their level of participation was medium with 33.3% accepting that it was high and only 8.3% viewing the participation level as low.

### Institutional structures for management and sustainability

Table 3 indicates the institutional structures that were established in the project to ensure sustainability. The effectiveness of the institutional structures that have been set up to ensure sustainability of the project is in doubt. At the time of the study 50% of the interviewed viewed...
the institutional structures as ineffective while only 44% thought these are effective. The ineffectiveness was attributed to: (1) the election of unskilled people to serve in these bodies, (2) lack of incentives to motivate the elected members and (3) involvement of people who do not have the interest of the community at heart but only concerned about enriching themselves.

There are other organizations that operate and participate in the project to ensure it achieves its objectives. Among the organizations is Swaziland Development Finance Corporation (FINCORP) and Swaziland Industrial Development Corporation (SIDC) which were identified by GoS as the suitable conduit for channeling credit funds. Also, a memorandum of understanding was signed between SWADE – LUSIP and Ubombo Sugar Limited for provision of comprehensive facilitation and support services to smallholder cane growers from enterprise initiation through to the delivery of cane to the mill.

In the institutional arrangement in the study area a high proportion (75%) of the respondents agreed that SWADE is able to fulfill her mandate of uplifting the standard of living of the people in the PDA. The reasons for the few (5.6%) negative included delays in project implementation, delayed processing of transactions, and inadequate extension support.

**CONCLUSION AND RECOMMENDATIONS**

The study indicates that smallholder development under LUSIP has a potential to contribute to the overall agricultural contribution to the Swazi economy. However, the question of farmer groups remaining in business in associations cannot be guaranteed as the participation for all community members in the farm business creates some resentment to the diligent when considering that shareholding is on equal basis. In addition, the smallholder farming business remains un-corporatized as ownership is still linked to management and opportunities for wealth creation or addition remain limited. The uncertainties surrounding land ownership and user rights remain one of the major threats on the sustainability of the farming business in SNL.

Farmers should learn from the other sectors and corporatize their businesses to consider issuing more shares as a source of income. Concerning the land ownership and user rights issues the government needs to finalize the National Land Policy to unlock most of the obstacles. Figure 4 summarizes the recommendations in a
Conflict of Interest
The authors have not declared any conflict of interest.

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