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**SECO Local Economic Development Assistance
Programme in iLembe – Value Chain and Cluster
Development (VCD) Component:**

**Supplementary Report:
Sugar Diversification into Horticulture
Pre-feasibility study**



TECHNOSERVE

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1 Executive Summary

The iLembe District Municipality is a 3 260km² area with a population of ~ 620 000 on the east coast of KwaZulu-Natal, bordering the Indian Ocean. It is the smallest of the province's district municipalities, making up a mere 3% of its geographical area. iLembe consists of four local municipalities located between Durban and Richards Bay: Mandeni, KwaDukuza, Maphumulo and Ndwedwe. The seat of iLembe is KwaDukuza (previously Stanger). The town straddles the Tugela River, the traditional border between former Colonial Natal and the Kingdom of Zululand, the site of historical and cultural events. The majority of the rural inland areas are tribal authority areas, characterised by subsistence farming. At the border of the district is the Unicity of Durban in the immediate south, which is linked by the coastal highway to Richards Bay in the north, giving it access to both harbours for trade purposes. It is also a leading place for the tourism industry. The key towns are Dolphin Coast/Ballito, Isithebe, KwaDukuza, Mandeni, Ndwedwe, Nkwazi/Zinkwazi Beach. The main economic activity is Agriculture.

The study investigated the possibilities to improve farming prospects for small-scale cane producers in the area. Diversification is in question, specifically to produce vegetables and fruits. The latter was excluded based on the ~5 years it takes to achieve a return on investment. Here are the key findings:

Vegetables

Small growers mainly produce vegetables on dry land, seemingly subsidized. This practice is not conducive to supply any market as consistency and quality cannot be guaranteed. The market itself for black farmers is not problematic as being close to Durban creates opportunities to supply informal and formal markets. Production is not coordinated and the farmers are too small to supply key markets individually.

We could not identify any irrigation schemes to support the farmers. Capital investment ~ R100 000 per hectare, will be required to develop irrigation infrastructure, purchase equipment needed for production and to capacitate farmers for production. At least 40 hectares need to be developed to ensure consolidated consistent supply. R4 000 000 will be required to start-up. Up to 80 farms can be developed as result – however, it all subject to the availability of water. Production needs to be aggregated via a pack house product distribution business hub. The hub should be central to the production areas. An additional investment of ~ R3 000 000 will be required to set it up

Sugar Cane

There are three mills in the area that operate at ~ 50% or lower. The key reason is low production per production units in general. Sugarcane production remains a good prospect based on high international price. Small-scale farmers produce on average ~ 19 tons per hectare lower than commercial counterparts do. From the gathered information, the average production is calculated at ~ 53 tons per hectare for commercial people and 34 tons per hectare for the small grower. The small grower farmer breaks even while the

commercial farmer wins R6500 per hectare. The RV is a 0.5% lower for the small grower. The difference was the same in dry periods.

Soil quality needs to be addressed in the district to improve production to above ~60 tons per ha. Seemingly, small growers try to “save” by applying less fertilizer and possibly chemicals. This was evident in Nkomazi, Mpumalanga as well when TechnoServe supported farmers in the area. This was turned around by making sure farmers adopt to best practices.

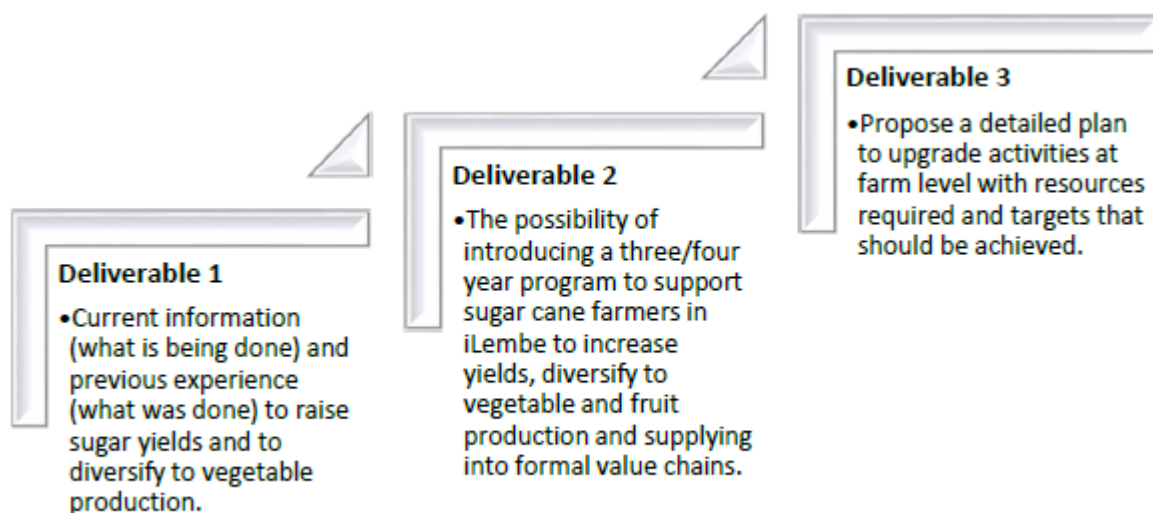
No farming enterprise will be sustainable if farmers do not make money. The best way to turn small grower production around is to create systems and methods to apply best practices that are based on commercial principles. In this case, it is to improve soil conditions, use appropriate cultivators, applicable fertilizers, and optimal chemicals. The logistics must be functional and success will be guaranteed.

Various organizations have extension services. They all should work together with common goals. It is important to group farmers into larger production units as envisaged by the key role-players. It will not be easy to diversify farming. Experience taught TechnoServe that farmers in the cane industry do not easily take to producing intensive product types. It probably better to fix the sugarcane production based on the lucrative sugar cane market.

The purpose of the project is to determine how to assist small-scale vegetable and sugar cane producers in the iLembe District area to achieve optimum results. The detail of each deliverable is indicated below:

2 Project Scope

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3 Previous Experience and Baseline Information

TechnoServe experienced the following in previous engagements supporting sugarcane and small scale vegetable producers in a prominent sugar producing area in Nkomazi Mpumalanga:

Sector	Baseline information
Sugarcane	<ul style="list-style-type: none"> • Small scale sugarcane producers produced on average 63 tons per hectare in Nkomazi. It was ~ at break even for most of these producers. It enabled them to survive. • TechnoServe supported farmers on between 80 and 120 tons per hectare. It averaged at about 95 tons per ha. • This was achieved by correct fertilizer application and implementing sound irrigation practices. • Fertilization application was the key variable. On average the small scale farmers spends ~ R5000 per hectare versus the ~R10 000 that was required. This was key in terms of breaking even or grossing `R7000 –R10000 per hectares at yields of ~ 100 tons per ha. • Farming tradition that dictates that you save when not applying fertilizer and chemical correctly -are the main reason for this practice. It was also perceived that some farmers remained in sugarcane production because of the loan advance that was available from AKWANZE the then TSB small growers lending institution.
Vegetables	<ul style="list-style-type: none"> • TechnoServe attempted encouraging farmers to diversify producing vegetables on vacant sugarcane lands. • It was not successful, mainly because of the very lucrative sugarcane price –its generally more profitable to produce cane under irrigation than producing vegetables. Farmers are not used to the intensive production requirements to produce vegetables. • Better success was achieved with farmers who primarily produce vegetables in the area. Probably because they were not reliant on income from sugarcane. • Vegetable farmers in general battled to supply formal markets. It was mainly because they were not familiar with the retailer’s supply and production specifications.

3.1 Sugarcane

Sugarcane is supplied into three sugarcane mills in iLembe. The tables indicates the supply into the mills by commercial farmers and small-scale growers from 2006 to 2016 and the specific results for 2015/2016.

Results Specific to 2015/16	
(Dry Year)	
Small growers - number farmers delivered	423
Commercial -number farmers delivered	247
Small growers - farm size in ha	18.58
Commercial growers - farm size in ha	145.99
Small growers - cane tons	137,748
Commercial -cane tons	1,505,180
Total	1,642,928
% Small Growers	14%
% Commercial Farmers	86%
RV Difference	0.36%
Tons per ha - small growers	23.10
Tons per hectare - commercial	41.74

Production Stats 2006-2015

Small growers - cane tons	233,937
Commercial -cane tons	2,355,326
Total tons	2,589,262
% Small Growers	9%
% Commercial	91%
Calculated tons per ha commercial farmers normal rainfall	53.48
Calculated tons per ha small growers normal rainfall	34.50
RV - small growers	11.32%
RV - commercial growers	11.85%
RV - difference	0.53%

N.B - The 2015 was an extremely dry year that influenced production negatively

Note the ~0.4% difference in the RV and the ~19 tons per hectare difference in production between commercial and small-scale growers.

The table below indicates the difference in profitability between commercial and small-scale growers. The costing is calculated estimates based on available data.

Ratoon <i>Description</i>	Small Scale Producer <i>Cost per ha</i>	Commercial Producers <i>Cost per ha</i>
Preparation	R 1,000	R 1,000
Seeds	R 0	R 0
Fertilization	R 5,872	R 9,378
Chemicals	R 1,026	R 1,026
Labour	R 890	R 495
Harvesting + Transport	R 4,950	R 6,850
Admin Cost	R 3,899	R 3,253
Total Cost	R 17,637	R 22,002
Tons Produced	34.5	54
RV	10.7	11.2
Average selling price per ton	R 4,750	R 4,750
Revenue	R 17,535	R 28,462
Gross profit	-R 102	R 6,460.29

- It is quite apparent that different standard practices exist between Small Growers and Commercial growers. The timeous application of correct quantities of herbicides and fertilizers seem to have a limiting effect on small grower production.
- The soil nutrients are depleted over a years of cultivation and need serious rehabilitation. It is fair to say that Small Growers do not have the capacity to undergo this process. It is possibly the key determining factor for low production.
- It seems that Small Growers in general have the latest disease resistant sugar cane varieties in production.
- The cane loading zones and infield transport seem problematic for some small growers.



- Small growers RV percentage is generally 0.5% lower than the commercial counterparts. It accounts for a loss of ~R500 per ha based on current production.
- Commercial producers gain ~20 tons on average per ha more than Small Grower. It accounts for a R6500 profit gain for the commercial person.
- **60 ton per Hecate with a 12% RV pushes the gross up to R11 500 per hectare. It is very achievable.**

There are also other factors that were considered that will influence improving small-scale suppliers improving sugarcane production practices.

- There are 3 sugarcane mills operating in the districts (1) the 2 million ton capacity **Maidstone Mill** owned by Tongaat Hullet (2) the 1.5 million ton capacity **Darnel Mill** also owned by Tongaat Hullet (3) the 1.5 million ton capacity **Gledhow Mill** 78% privately owned by the producers. Currently the supply is at ~33%. The norm is ~50%.
- The **Cane Growers Association** plays a supporting role supplying extension throughout the area through seven extension officers in KZN. Cane Growers have a business development structure that is investigating various interventions and diversification opportunities that could benefit growers in future.
- **SAFDA** has similar visions as the Cane Grower Association. It is unsure if there is space for two similar organizations like this and we did not make contact with any of their representatives to confirm their aspirations.
- **Simamisa:** is a primary co-op subsidiary, which is a development management company of Tongaat Hullet. It is a communal lease revitalizing sugar cane program under the Ingonyama Trust, promoting the transfer of skills & ongoing training and creating jobs for social economic development.
- **SASRI** is an agriculture research institute that is at the forefront of a healthy sugar industry with a focus on 4 multidisciplinary programmes; variety improvement, crop protection, crop performance & management, system design & optimization.
- The various mills have their own extension support structures, focusing on various economic aspects supporting **Small Scale Sugarcane Growers**.
- The majority of cane production is dryland with limited irrigation. The irrigated area is round about 18%. Currently there is no scope & plans for building reservoirs due to high costs. The net result is that no additional water rights can be allocated by the various water boards.



- A promising key idea is to create larger business production units by aggregating small-scale farmers in larger production units.

3.2 Vegetables

The following was observed in terms of current vegetable production in the area.

- The iLembe District parallel to the KZN Department of Education School feeding schemes promotes vegetable production. It is evident that the contractors do not rely on small growers to supply the products.
- Currently vegetable production is done via Co-operatives supported by a structure of the iLembe Development Program and KZN Department of Agriculture. **Two tunnels ~ ¼ each** were erected for this purpose but they are not fully functional. One structure is currently being revitalized to be utilized & managed by an out grower.
- **Vegetable** production is included in the development plan of the Qwabe Co-op in the form of 5ha communal gardens. The Qwabe Co-op provides the biggest opportunity for vegetable production. Currently vegetable production is done via Co-operatives supported by a structure of the iLembe Development Program and KZN Department of Agriculture.
- No proper **irrigation schemes** were identified. Currently most small-scale farmers produce vegetable on dry land. The scope for irrigation is limited due to lack of access to water resources and water infrastructure. There is no likelihood of new water permits being issued.
- Small irrigation projects could be possible if the necessary infrastructure is provided and possible sites are identified.
- **Most of the plots are on** slopes with higher than 12% gradients. It is not suited to produce crops.
- It is possible that soils in the lower lying areas could have clay content of less than 15% with high permeability. It will not be suitable for crop production. The higher elevated regions are possibly more suitable for crop production.
- A must mention is that the vegetable producers are extremely close to the Durban Metropolitan. It is a huge advantage since transport is a limiting factor for vegetable producers. Both formal and informal markets can be served.
- **Markets** are generally not a problem for Black vegetable producers based on TechnoServe's experience. The producers themselves tend to be the problem by not

applying best practice resulting in inconsistent quality to the respective markets.
Immediate access to SPAR and Freshmark is possible.

The table below indicates potential results that Small Scale Vegetable producers can achieve producing vegetables.

	Tomatoes	Green peppers	Butternuts	Green Mealies	Cabbage
Typical Production Cost for a hectare	R 185,628	R 159,970	R 57,641	R 33,352	R 74,806
Kilograms produced per hectare	50,000	25,000	30,000	25,000	20,000
Average cost price per kg	R3.71	R6.40	R1.92	R1.33	R3.74
Average selling price per kg	R4.80	R7.50	R2.70	R2.00	R6.00
Revenue	R 240,000	R 187,500	R 81,000	R 50,000	R 114,000
Gross profit 1 ha	R 54,372	R 27,530	R 23,360	R 16,648	R 39,194
Gross profit - 0.5 ha	R 27,186	R 13,765	R 11,680	R 8,324	R 19,597
Gross profit - 0.25 ha	R 13,729	R 6,951	R 5,898	R 4,204	R 9,896

Notes:

- *Most common crops were used in the construction of the table*
- *Production is under irrigation*
- *The purchase prices and yields are low averages*
- *There is an opportunity to pack produce to add value. It generally adds ~ 27% addition revenue*
- *Aggregation and scale is essential when working with small-scale producers if they want to supply formal markets. Consolidated consistent supply is key for building relationships with these markets.*

3.3 Additional Information

TechnoServe is in the process creating three vegetable production hubs in KwaZulu-Natal. The concepts are reflected below in accordance with TechnoServe definitions.

- A business hub is a strategic space in a value chain from where activities are orchestrated that improve business prospects for an identified group of beneficiaries. The activities focus on improving prospects up and downstream in the value chain and aim to promote prosperity and sustainability for all. It is basically a focal point coordinating and managing value adding activities.
- A vegetable hub will therefore be a place where production planning happens, development services are provided and production aggregation and bulk product distribution and packaging take place. The hub is usually placed in production areas where there are numerous small producers that need to produce collectively in order to achieve scale to supply common markets in a consistent and consolidated manner.
- It is very important to understand that retail markets - or any for the matter of fact - are extremely conscious of quality and consistent supply – reliability is key. The hub must ensure reliability. Subsequently, key to ensuring quality is irrigation and the related equipment to ensure consistency.

- A capital investment in terms of production equipment, irrigation and developing human capital will be essential to achieve any success in iLembe provided the water resources warrants such investment.

4 Possible Solutions

4.1 Sugar Cane

- The various organizations supporting small cane growers must have a common goal – introducing best practices for small growers based on commercial values – **no other initiative related to sugar will be successful unless farmers make money.**
- A soil improvement program needs to be launched
- Creation of economically viable production units as visualized. Business models must be developed and farmers must be sensitized in terms of the models and how they fit in
- Commercial practices must become a farming culture. Training and mentorship will be key
- Production efficiencies must be improved. Training and mentorship will be key.
- Input finance needs to be made available
- Logistics must be efficient to counter any losses
- Launch a pilot on a couple of hundred of hectares applying the principles to stimulate buy in.

4.2 Vegetables

- Determine if there are water resources related to agricultural land to house a vegetable production initiative
- Develop the irrigation infrastructure ~ at least 20 hectare to start ramping to 50 hectares as the project continues
- Create an aggregation hub that plans production, provides capacity building, assembles and distributes product – MAINLY TO SELL PRODUCT - on behalf of farmers
- Ensure markets and create a marketing model for the project –remembering that it is a business
- Launch an extensive capacitation program to develop the human capital at hub and farmer levels. Apply commercial standards
- Ensure an input loan facility is available
- Exit strategy and gradual removal of support it has an negative effect on the market
- Produce and SELL.

5 Suggested Activities

Based on what has been learnt to date, it is too early to create a detailed activity plan. The only early activities suggested to be undertaken in the course of inception phase are:

5.1 Sugarcane

- Establish if the involved organizations can agree to common objectives to improve primary production practices of the small-scale farmers.
- Additional activities can be planned if the response is positive on this activity.

5.2 Vegetables

- Establish if there is sufficient water resources that can be used to create irrigation infrastructure to stimulate vegetable production;
- Determine if the farmers to be involved have the capacity to produce vegetables on scale.
- Conclude, if it possible to create a vegetable production hub that is close to the farmers and that has market accessibility.
- Additional activities can be planned if the response is positive on these activities