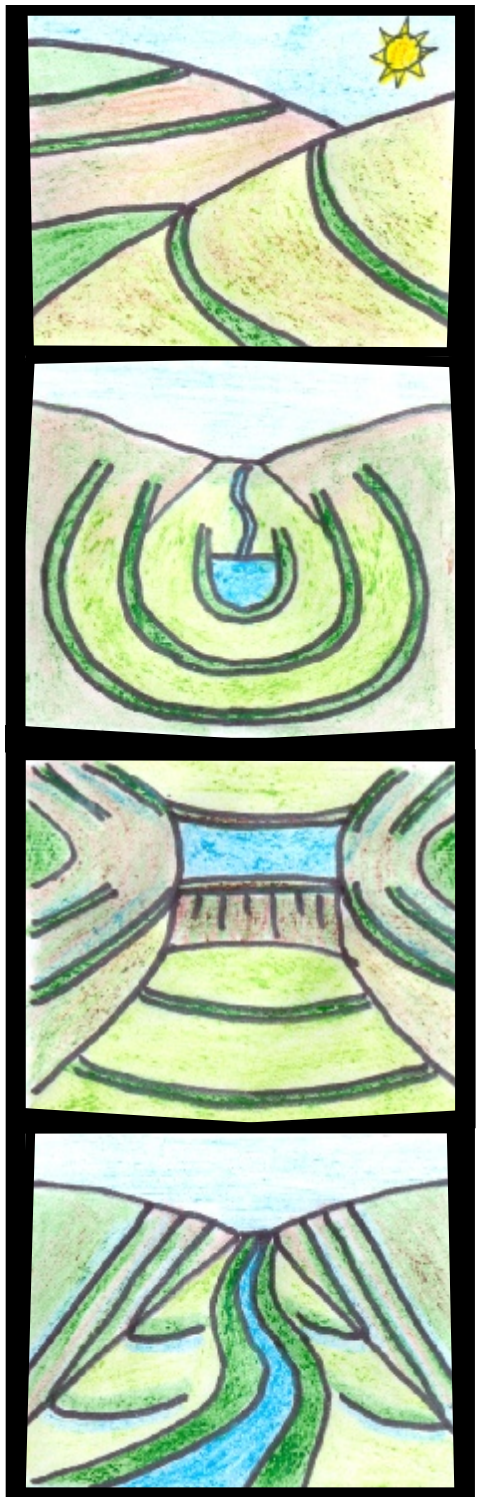

DEVELOPMENT PLAN FOR ORGANIC SMALL GROWER GROUPS IN UGU DISTRICT MUNICIPALITY

Version 1 – September 2006

A programme by

gijima KZN
TOGETHER, ACCELERATING LOCAL ECONOMIC DEVELOPMENT

DEPARTMENT OF ECONOMIC DEVELOPMENT

Funded by

EUROPEAN UNION

and

Prepared by

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Prepared for

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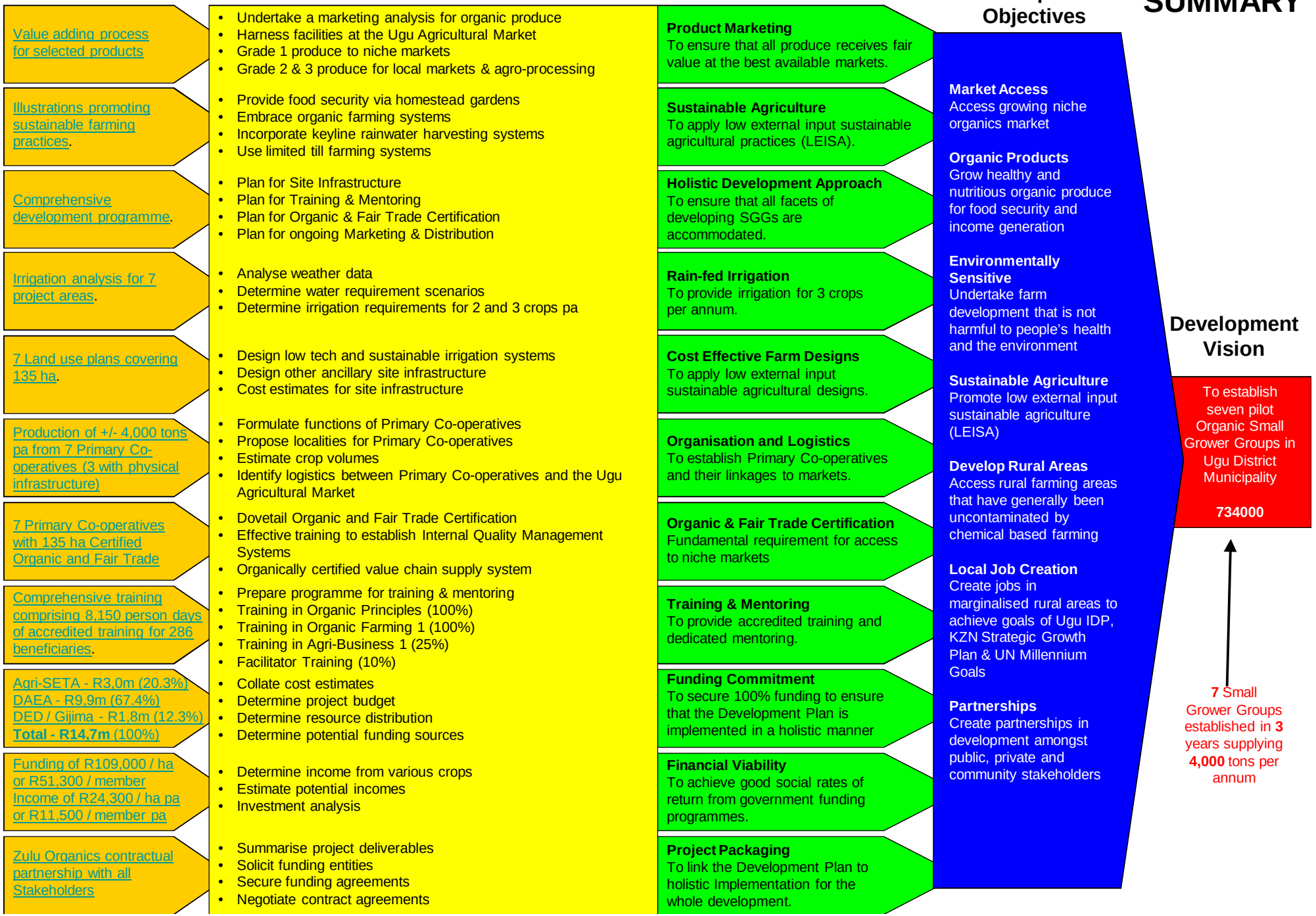
EXECUTIVE SUMMARY



DEVELOPMENT PLAN FOR
ORGANIC SMALL GROWER GROUPS
IN UGU DISTRICT MUNICIPALITY

Acknowledgements

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Gijima KZN / European Union

Zulu Organics equity contribution

Local Stakeholders

Ugu District Municipality – M. Mkhungo

Ezinqoleni Municipality – T. Sithole

Hibiscus Coast Municipality – W. Mngqosini

Gijima KZN – N. Sabela

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National Mapping – M. Margot

PS Solutions – P. Swart

Rural Projects – R. Schley

Contents

1. PROJECT PROCESS

Background

This Development Plan for Organic Small Grower Groups in Ugu District Municipality has been compiled by the Zulu Organics Project Team in response to the extremely positive socio-economic development opportunities that can be realised for historically marginalised small scale farmers in the rural areas of KwaZulu-Natal, and in particular, the Ugu District Municipality with its new Ugu Agricultural Market. Moreover, the current sustained growth of the organics sector, both internationally and in South Africa, and its relatively easy access by small scale farmers, lends itself to creating development opportunities in this growing niche sector.

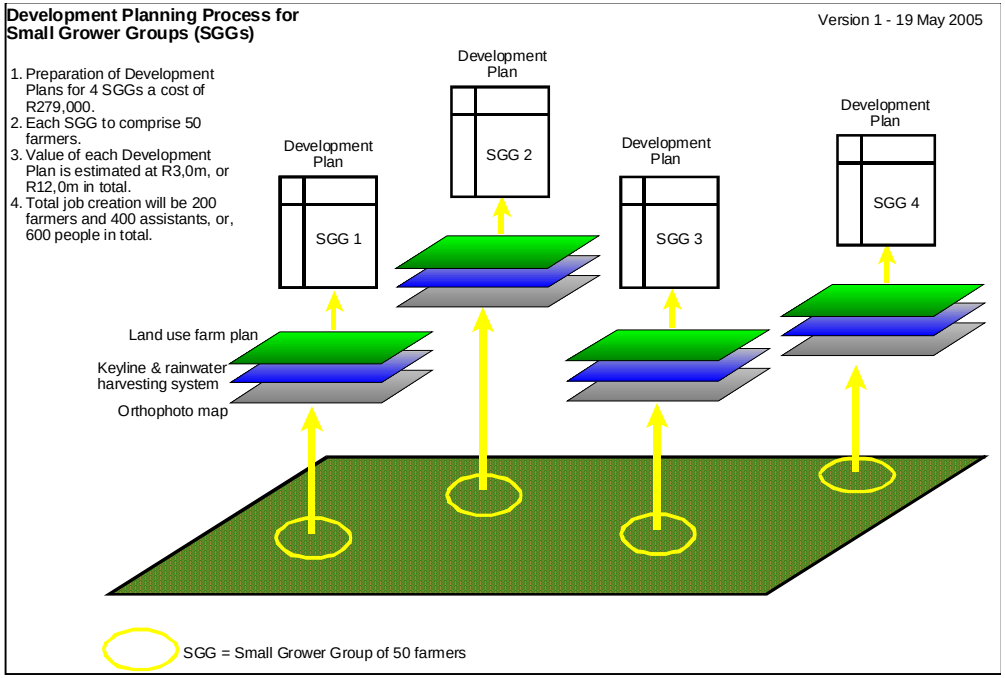
This growing organics market has already been accessed by Small Grower Groups (SGGs), such as the Ezemvelo Farmers Association from Umbumbulu, who are currently supplying Woolworths via an organically certified packshed. Although some government departments, research institutes and commercial organic farmers have assisted the Ezemvelo Farmers Association, this SGG is far from its full development potential due to the lack of a holistic development approach and associated funding needs. Unfortunately, there are many other SGGs that have not reached their full development potential for the same reasons. To this end, Zulu Organics has been established to offer a holistic development service for SGGs.

Project Objectives

Given this background, a huge opportunity prevails to develop SGGs within the Ugu District Municipality to supply the growing organics market and the new Ugu Agricultural Market. This project entails the preparation of a holistic Development Plan for seven SGGs that is envisaged to pilot the establishment and further growth of organic SGGs within the broader Ugu District Municipality. The Development Plan essentially entails the selection of SGGs with local stakeholders; the preparation of project specific land use plans; a marketing analysis; conceptualisation of primary co-operatives and market logistics; budget and resource requirements; a development programme; and, a concluding funders workshop. The criteria for the selection of the seven SGGs was their relative closeness to the Ugu Agricultural Market; and, that each member of a SGG had access to at least one to two hectares of land, either around a homestead and/or within a community garden scheme.

Project Process

The project process commenced with the submission of an European Union funding proposal to Gijima KZN / Department of Economic Development (DED) in May 2005. The proposal was subsequently approved in September 2005 and the project commenced in early December 2005. The total project cost was R438,000, with European Union providing R279,000 (64%) and Zulu Organics the R159,000 (36%) funding balance as equity contribution.



Upon approval of the project, Zulu Organics mobilised the Project Team and engaged municipal stakeholders from Ugu District Municipality, Ezinqoleni Municipality and Hibiscus Coast Municipality, as well as, the Department of Agriculture & Environmental Affairs (DAEA) from the Izingolweni District Office. These government entities, together with Gijima KZN, established the Project Steering Committee to direct, evaluate and endorse the project process. Whilst only two such Project Steering Committee meetings were held, there were numerous other meetings which steered the course of this project.

The first crucial task was the selection of SGGs. Initially the proposal suggested only four SGGs, but seven SGGs within three area clusters were chosen for strategic socio-political reasons as shown in the locality map on the next page. The unfoldment of this process also entailed a substantial effort towards sensitizing stakeholders about organic farming systems. For this reason, this project has been noted as a pilot organic initiative within Ugu District Municipality. Presentations about the scope of the project and organic farming systems were made to each SGGs, who in turn confirmed their commitment to the project in writing as contained in Appendix A.

The commitment of each SGG then started the technical evaluation of each project area which entailed an irrigation analysis and the preparation of a farm land use plan together with cost estimates for site infrastructure. A marketing analysis for organic products was also conducted together with several discussions around the packshed and agro-processing facilities to be located at the Ugu Agricultural Market.

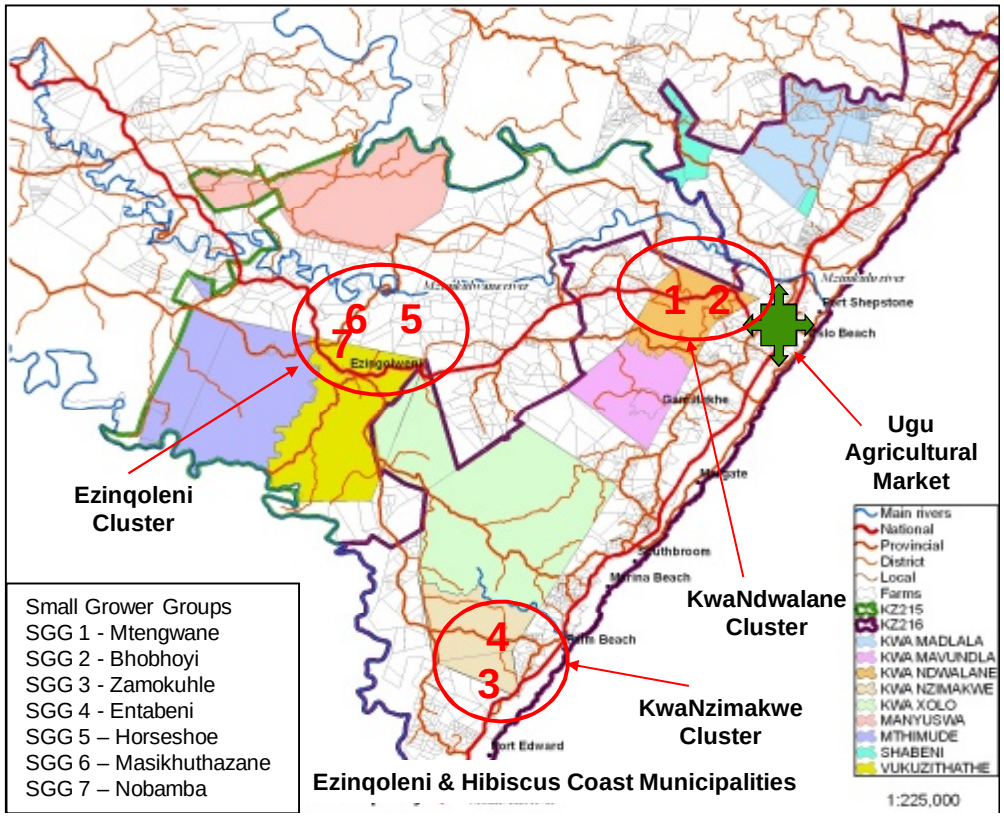
This information was then presented at a 2-day organic orientation training course at the Newlands Mashu Permaculture Learning Centre and the Rainman Landcare Foundation in Durban. This 2-day course was attended by some 55 people comprising, representatives from each SGG; local economic development officials from several municipal entities within Ugu District Municipality; officials from various district offices from the Department of Agriculture & Environmental Affairs within Ugu District Municipality; and, Gijima KZN. The 2-day course provided an invaluable opportunity to emphasize that organic farming is all about how sustainable agriculture can supply a growing niche organic market and thus realise good economic returns. The technical analysis then continued with the preparation of cost estimates, budget and programme formulations, and, resource funding requirements.

This project was concluded with a funders workshop in order to solicit funding commitments for the holistic implementation of the Development Plan. Within this project process, there were many ad hoc workshops and meetings related to the potential supply of produce to the new Ugu Agricultural Market, and, funding opportunities.

Project Content

This background now sets the scene for how this Development Plan is compiled. It should be noted that this is no ordinary report, but rather, a Development Plan comprising succinct narrative, illustrations, tables, figures, photos and land use plans that clearly present the how this Development Plan can be taken to Implementation as soon as all the funding required has been secured. To this end, the content of this Development Plan is as follows;-

- Development Vision :- This sets out the overall vision of the project.
- Development Objectives :- This outlines the set of socio-economic reasons why this project is being pursued.
- Product Marketing :- This exercise reports on the state of the organics market and identifies suitable organic products for this project.
- Sustainable Agriculture :- This component introduces some very important farming systems that promotes sustainable agricultural practices.
- Holistic Development Approach :- This approach highlights the importance of a holistic approach to developing small scale farmers in order to mitigate against project failure.
- Rain-fed Irrigation :- This exercise analyses the amount of water required for irrigation for each SGG given the specific weather data for the general project area and the types of crops to be grown.
- Cost Effective Farm Designs :- This component uses the aforementioned irrigation analysis to prepare concept farm land use plans for each SGG.
- Organisation and Logistics :- This aspect formulates the scope of Primary Co-operatives and how they ought to create distribution linkages to the Ugu Agricultural Market given the estimated crop volumes from each project cluster.
- Organic & Fair Trade Certification :- This highlights the overlap amongst various guidelines in order to develop an acceptable unit standard that can be certified by the relevant organic and fair trade agencies.
- Training & Mentoring :- This component contains the proposed training itinerary for training and empowering the members of each SGG to become viable Primary Co-operatives.
- Funding Commitment :- This task collates all cost estimates into a budget and then identifies potential funding sources.
- Financial Viability :- This exercise analyses the financial viability of the project under various financing options.
- Project Packaging :- This concluding task outlines how this project can be packaged for implementation.
- Appendix A :- This contains the letters of commitment and contact details of SGGs.
- Annexure 1 :- This is the DVD for the project which contains this Development Plan, the Project Poster, and, 3D orthophotos.



2. DEVELOPMENT VISION

To establish seven pilot Organic Small Grower Groups (SGGs) in Ugu District Municipality

It is envisaged that these seven SGGs will be established in 3 years and can supply some 4,000 tons per annum of organic crops via the Ugu Agricultural Market. The seven SGGs have been clustered within three marginalised peri-urban / rural areas which can lead the way for other similar SGGs to be developed. The seven SGGs will therefore lead the way insofar as establishing partnerships in development within the local organics industry.

3. DEVELOPMENT OBJECTIVES

Market Access

Access growing niche organics market

The organics market is one of the only markets worldwide that has consistently experienced double digit growth rates during the past five years. The hype about organics is driven by consumers who have become more conscientious about their health and their care for the environment. Although the organics market is still a small portion of the overall agricultural market, this strong growth trend is likely to continue growing for at least the next 5 to 10 years. It is also envisaged that organic prices will start to decrease as the organics market increases, but, that this decrease will also reflect a less expensive approach than conventional farming whose input supplies are directly correlated to increasing oil prices as a result of Peak Oil.

Organic Products

Grow healthy and nutritious organic produce for food security and income generation

It has long been acknowledged that organic food contains more nutrition than food grown from conventional farming which is laced with harmful fertilizers and toxic pesticides. Organic food therefore has a far better price to nutrition value than food grown from conventional farming. Organic food has virtually no toxic trace elements, thereby minimizing the chance of becoming ill from the likes of cancer, leukemia, HIV/AIDS, etc.

Environmentally Sensitive

Undertake farm development that is not harmful to people's health and the environment

Consumers are now better informed about environmental issues and the state of our planet as a result of climate change. The evidence of environmental damage caused by the over zealous use of harmful fertilizers and toxic pesticides by conventional farming is mounting, and hence, a growing number of consumers who are now supporting more environmentally friendly ways of food production, such as, organic farming. The imminent arrival of Peak Oil is also shifting paradigms towards more energy efficient forms of food production in order to reduce ones ecological footprint.

Sustainable Agriculture

Promote low external input sustainable agriculture (LEISA)

Organic farming itself embraces sustainable agricultural practices that have been influenced by the permaculture movement, biodynamic farming, conservation farming systems, limited or no till farming, keyline rainwater harvesting systems, etc. These influences are all rooted in working with, rather than against nature, and, mimicking the natural ecosystems found within nature. To this end, the concept of low external input sustainable agricultural (LEISA) practices has emerged whose proven examples have now become the guidelines for organic farming in general. LEISA practices are not dependent on oil guzzling fertilizer, pesticide and heavy farm machinery input required by conventional farming, but rather, with natural biomass which is used as compost and mulches to replenish the soil and with minimal disturbance to soils with farm machinery. Furthermore, LEISA practices use keyline rainwater harvesting systems that recharge the aquifers rather than conventional farming which generally abstracts directly from aquifers and/or is dependent on dams and associated infrastructure for irrigation.

Develop Rural Areas

Access rural farming areas that have generally been uncontaminated by chemical based farming

Government investment in agricultural has generally bypassed most Traditional Authority areas in South Africa, and especially KwaZulu-Natal. Despite being so marginalised, these areas have not been contaminated by the heavy fertilizers and toxic pesticides associated with conventional farming, and as a result, are now poised to realize their organic farming potential in a relatively easier process than other commercial agricultural operations that require a 5 to 7 year long organic in-conversion process to become certified organic. The opportunity to invest in organic agriculture within marginalised rural areas can now be used for major local economic development projects designed to stimulate growth within rural areas and help stem the tide of rural to urban migration.

Local Job Creation

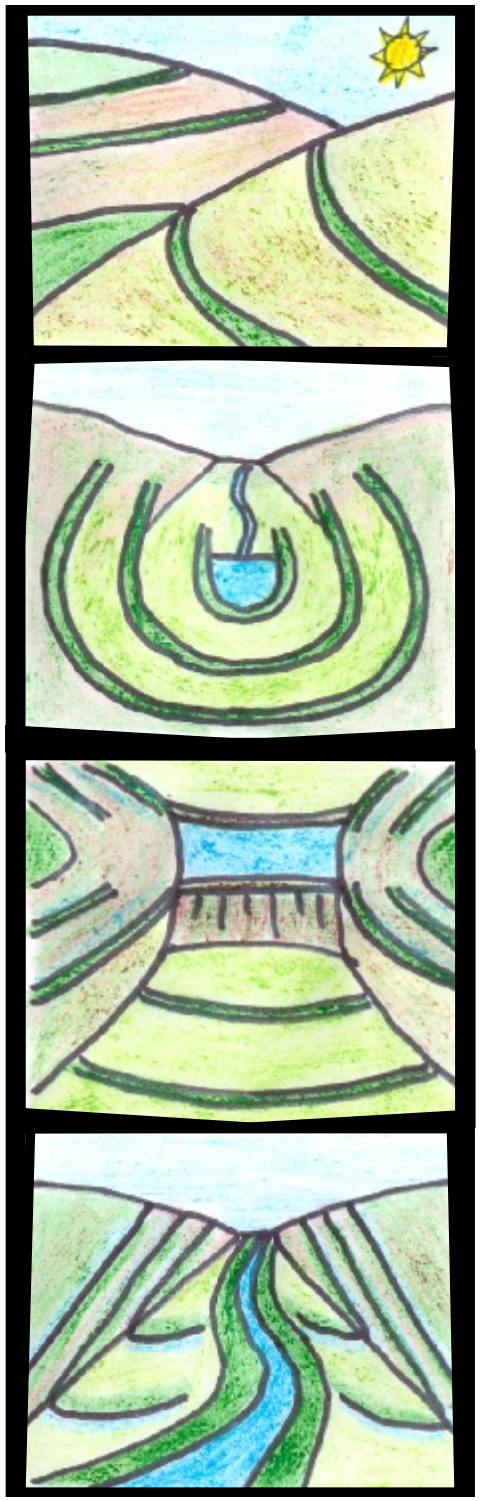
Create jobs in marginalised rural areas to achieve goals of Ugu IDP, KZN Strategic Growth Plan & UN Millennium Goals

The process of organic farming is in itself very labour intensive and can therefore create more jobs than conventional farming. The scale of organic farming is also smaller and more localised than conventional farming. This promotes more varied and stimulating jobs with a higher skills learning potential, whilst simultaneously creating far more entrepreneurial opportunities, all at a local level where development is most needed.

Partnerships

Create partnerships in development amongst public, private and community stakeholders

The greater opportunity for job creation, and, skills and entrepreneurial development within the organic farming sector, facilitates more interaction amongst a greater number of role players in comparison to global corporate agri-business dominated conventional farming. This clear advantage within the organic farming movement for people driven development can only benefit the general upliftment of society as a whole, but more especially, in previously marginalised rural areas.



4. PRODUCT MARKETING

Critical Success Factor	To ensure that all produce receives fair value at the best available markets.
Action Plans	• Undertake a marketing analysis for organic produce • Harness facilities at the Ugu Agricultural Market • Grade 1 produce to niche markets • Grade 2 & 3 produce for local markets & agro-processing
KPIs / Deliverables	Value adding process for selected products.

ORGANIC MARKETS

The statistics presented in this section regarding the growth of the organics industry worldwide and in South Africa have been extracted from a presentation given by Mr. Leonard Mead, Chairperson of Organics South Africa, at an Organics Workshop held in Inchanga, Durban, during November 2005, which was organised by the Department of Agriculture & Environmental Affairs (DAEA), and, the Department of Economic Development (DED).

The international market for organic products is forecasted to grow at an average of 10 to 15% per annum until 2008. Thereafter, it is possible that this growth rate may be sustained for a few more years. However, it is likely that growth rates will start declining but still be amongst the leading growth markets worldwide.

The Datamonitor forecast for the worldwide organics industry four years ago for 2006 was $26.5 billion. However, given the Datamonitor returns of $23.8 billion in the European organic market - only, for 2004, it is likely that the 2006 forecast will easily be surpassed. New forecasts predict the US organic market alone reaching $30 billion by 2007.

Statistics for the South African Organic Market have only recently been determined simply because South Africa produced such little organic produce. It is known that up to two years ago, organic sales in South Africa were about R5 million per annum. The forecast for 2005 was around R135 million.

The worldwide growth of organic products is now also being demand driven by consumers who desire organic products that are cultivated in accordance to sound ecological principles and also by fair trade practices. Although organically certified does not automatically mean that it qualifies as a fair trade product, there are many instances where the two initiatives do overlap, especially when organic produce is grown by historically disadvantaged small scale farmers.

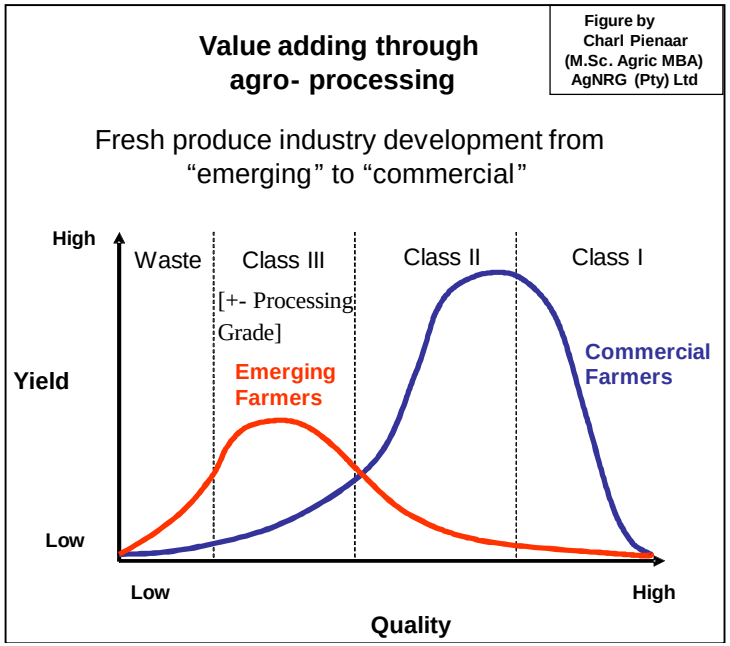
The ever increasing threat of global warming and climate change is making consumers more aware of sustainabilty issues which can be enhanced by reducing ones ecological footprint. This means the support of local farmers and local produce which is often distributed through new networks such as “vegetable box-schemes” or “community supported agriculture”. The speciality health shops have also seen a huge growth as consumers desire organic soaps, shampoos, essential oils, toothpastes, etc.

The National Organics Producers Initiative (NOPI), is also promoting the development of the organics industry in South Africa simply because it makes meets sustainability criteria insofar as mitigating against global warming and climate change; promotes ecological ways of farming; promotes small scale emerging farmers; and, ensures that local economic development takes place.

In South Africa, there are currently some 200 certified operations covering about 515,000 ha. Approximately 77% or these operations have been certified in the past 4 years. Approximately 500,000 ha is pasture whilst some 11,000 ha is rooibos. The balance is fruit (58%), vegetables (32%), essential oils (6%), and, wine(4%). The largest fruit crop by area is – bananas, avos and mangoes, whilst the largest vegetable crop by area is – cucumber, tomato, asparagas, brassica and potato.

It suffices to say that an incredible opportunity exists for South Africa to grow its organics industry and start supplying both local and export markets. In South Africa, there are many struggling small scale historically disadvantaged emerging farmers who have not contaminated their soils by harmful fertilizers and pesticides simply because they did not have the resources to do so. This past “handicap” now stands them in good steed since their soils are poised to be certified organic relatively easier than conventional farmers who may have to revert to a longer “organic in-conversion process” if the latter soils have been contaminated by harmful fertilizers and pesticides.

However, the organics industry in South Africa still has a long way to go towards organising and developing its value chain supply logistics, and this missing component often does not realise the full potential of many organic farming projects, from the large commercial scale through to the small scale emerging farmers. Nonetheless, an exciting opportunity is being presented by the new Ugu Agricultural Market which will have agro-processing facilities to add value to crops produced by small scale emerging farmers as shown in the figure below. This value adding will realise better financial returns than otherwise as Class III produce is processed into various niche organic product lines as illustrated in the following two pages.



ORGANIC VALUE ADDING PROCESS

Beetroot

First & Second Grade

Cleaned graded & packed

Baby Beetroot, cooked

Second and Third Grade (Value adding/Processed)

Sliced & bottled

Chutney

Wine

Sliced & Fried Chips

Potato

First and Second Grade

Cleaned graded and packed

Second and Third Grade (Value adding/Processed)

Instant Mash

Powdered Soup

Fried Chips

Diced & mixed

Baby Foods

Banana

First & Second Grade

Cleaned graded and packed

Second and Third Grade (Value adding/Processed)

Banana Muffin

Shampoo

Cereal

Sliced, Fried

Dried & Mixed

Juiced

Baby Foods

Yoghurt

Sweet potato

First and Second Grade

Cleaned graded and packed

Diced and packed

Diced and packed

Second and Third Grade

Processed - Dried Soup

Processed - Fried Chips

Processed - Baby Foods

Imported Processed Items

Niche retailer, local and export market opportunities exist for organic processed foods.

Organic Coffee, South America

Non -Organic Banana Chips, South America

Nich Market opportunities

High Value processed products and market appeal. Suitable climatic conditions.

Aloe Vera - Hardy perrenial herb with high value and market appeal, pest resistant and disease hardy. Processed into Yoghurt (shown) and Cosmetics medicinal. Climate suitable

Lemongrass - Hardy perrenial herb with high value and market appeal, pest and disease hardy. Good unprocessed markets. Processed into Soaps (shown) and Cosmetics and medicinal. Climate suitable

Madumbe - Hardy moist soils, requires little management, current market appeal, pest resistant and disease hardy. Good unprocessed markets. Processed into Crisps (shown), poridges, and supplimentsl. Climate suitable

Cherry Tomato - Hardy quick grower, requires little management, current market appeal, pest and disease hardy. Good unprocessed markets (salad packs). Processed into Pesto (shown), juices, Jams and pulp Climate suitable

Garlic Chives - Hardy perrenial grower, requires little management, current market appeal, pest and disease hardy. Good unprocessed markets (salad packs). Processed into Pesto (shown), dried herbs. Climate suitable

High Value existing retailer markets (Organic)

High Value un-processed products and growing market appeal. Suitable climatic conditions. Guaranteed markets in KZN. Retailer will accept 'in conversion' status

Green Peppers - Dependent on suitable soil conditions. Demand in summer months Relative high value and market appeal, Processed markets in Pizza production, Salad Packs and Good unprocessed markets. Climate suitable
Current Prices Woolworths R 8.90 Organic
R6.00 Non Organic.
Retailer demand organic price paid approx 25% more than non organic at markets

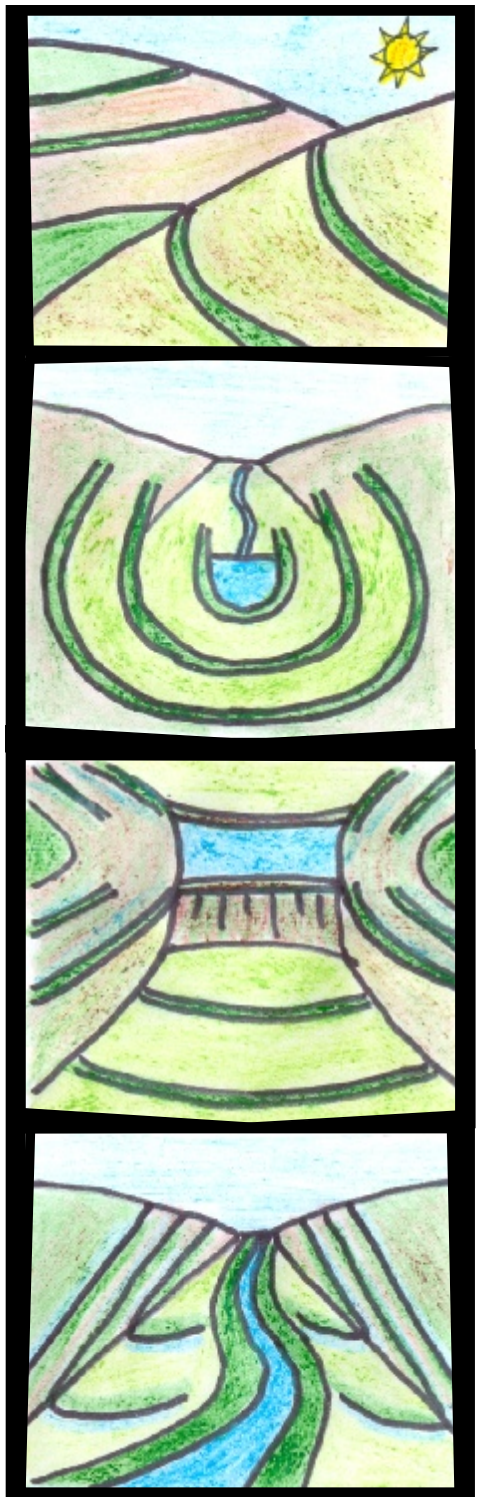
Banana - Dependent on suitable soil conditions. Demand year round. Relative high value and market appeal, Processed markets high for banana chips and mueslis, cosmetics. Pulp demand especially organic export and fair trade opportunities.
Current Prices Woolworths R 9.95 (Six) Organic
Retailer demand. Organic price paid approx 15-20% more than non-organic at markets

Carrot - Dependent on suitable soil conditions. Demand year round. Relative high value and market appeal, Processed markets high for Juices. Pulp demand especially organic export and fair trade opportunities.
Current Prices Woolworths R 6.95 - 400g Organic

Retailer demand. Organic price paid approx 20% more than non organic at markets

Cherry Tomato - Dependent on suitable soil conditions. Demand year round. Relative high value and market appeal, Salad pack demand especially organic export and fair trade opportunities.
Current Prices Woolworths R 8.95 Organic

Retailer demand. Organic price paid approx 20% more than non organic at markets



5. SUSTAINABLE AGRICULTURE

Critical Success Factor	To apply low external input sustainable agricultural practices (LEISA).
Action Plans	• Provide food security via homestead gardens • Embrace organic farming systems • Incorporate keyline rainwater harvesting systems • Use limited till farming systems
KPIs / Deliverables	Illustrations promoting sustainable farming practices.

HOMESTEAD GARDENS

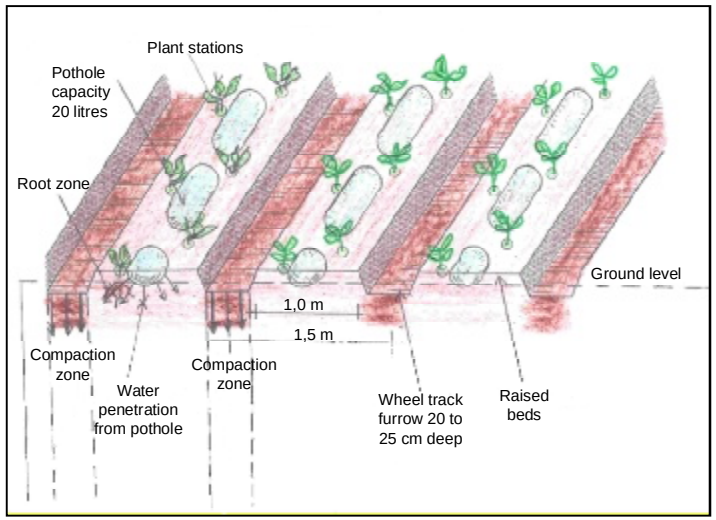
Many community based agricultural schemes have failed because beneficiary farmers do not have adequate food security and hence the neglect of such schemes upon hard times. For this reason, it is vital to ensure that beneficiary farmers establish homestead gardens that satisfies food security whilst the agricultural scheme can be used for income generation. A flourishing homestead garden is illustrated above which shows the application of many sustainable agricultural practices, such as, rainwater harvesting, plant guilds and succession. The acid test for beneficiary farmers in any agricultural scheme is the state of their homestead garden. In other words, a flourishing homestead garden demonstrates that beneficiaries have applied what they have learnt close to home and thus will generally not neglect their contribution in the community based agricultural scheme when their time is required.

ORGANIC FARMING SYSTEMS

Organic Farming is an approach whereby the farmer cares for the environment and for people; the people who work on the farm; the people who live in the area; and, the people who buy the food and other products produced on the farm. In simple terms, there are four major principles based on these values of responsible care, namely;-

- Feed the soil, not the plant.
- Find the right plants and animals for your farm.
- Do not use chemical fertilizers, poisons and genetically engineered seeds.
- Ensure that healthy products reach consumers.

Quality Management (QM) depends on a responsible farmer understanding these principles, assessing the risks of non-compliance, and developing an internal standard which manages these risks. This applies to an individual farmer or to a group of farmers.



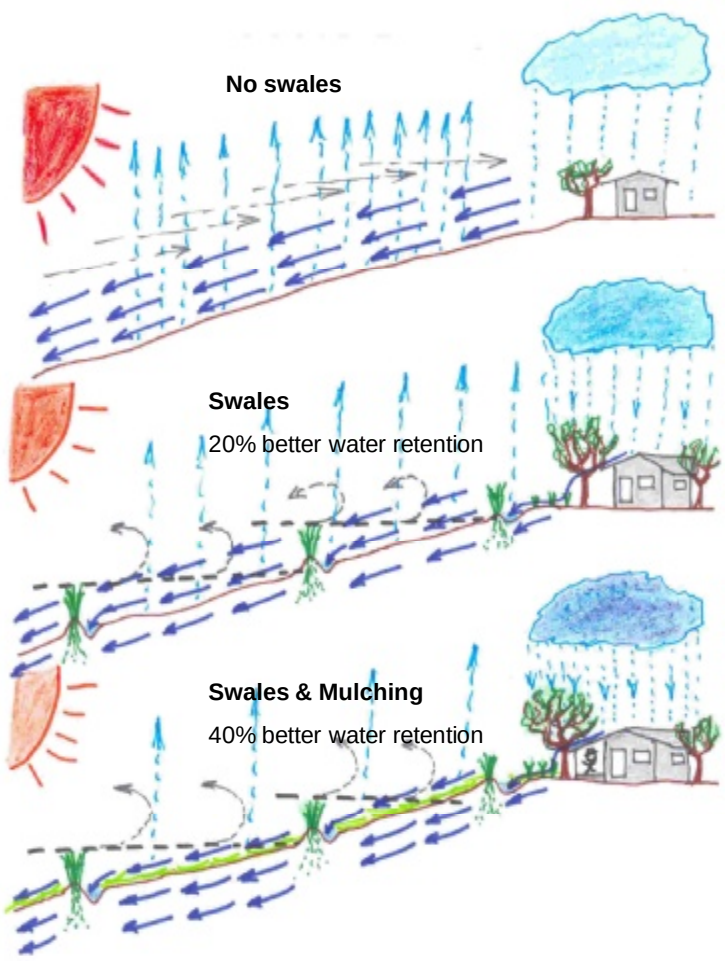
NO-TILL OR LIMITED TILL FARMING

No-till or limited till farming has been gaining popularity during the past two decades, particularly in the USA, Australia and some parts of Europe. However, its advantages have not yet been widely acknowledged in South Africa. No-till or limited till farming essentially minimizes the disturbance to soils in order to retain their healthy natural state. The alternative, which is conventional ploughing, basically compacts the soil and destroys the vital humus content of soils, thus rendering the soil useless unless it is heavily fertilized. Furthermore, no-till or limited till farming reduces the use of heavy agricultural machinery and consequential operating costs.

The crux of no-till or limited till farming lies in the use of a ridging system in association with keyline rainwater harvesting systems. More specifically, the ridging system falls in between keyline rainwater swales which are designed with slight slopes to promote the absorption of rainwater and irrigation water into the soils. The figure on the left illustrates a ridging system which shows a ridge of about a metre width that can be established by a small tractor, and/or, hand hoeing and an implement called a “ridge-bed-maker”, which essentially breaks up the soil before shaping the ridge via discs and a crumbler. The crumbler can also be modified to allow attachments that make uniform seedling holes and a water basin, or pothole, on top of the ridge. The ridge-bed-maker can also be used to plant seedlings and feed the soil with appropriate organic fertilizers.

The benefits of the pothole in the middle of the ridge at about half a meter centres enhances the ability to catch rainwater and provide water right where the plants need it. A hectare of this ridging system contains about 6,7 kms of ridging at 1,5m centres and about 13,400 small basins that can each capture approximately 20 litres of water. This amounts to 268 Klitres per hectare of additional water storage capacity and effectively halves the amount of bulk irrigation storage capacity required.

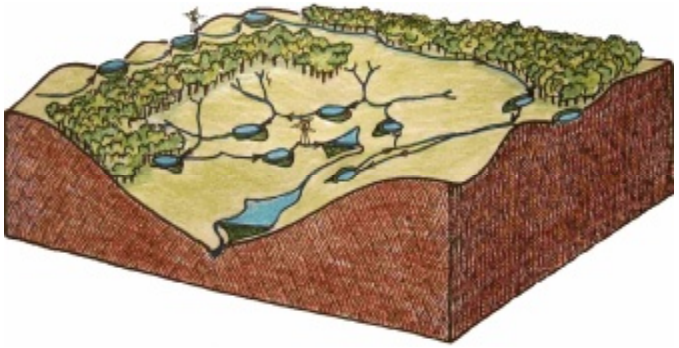
KEYLINE RAINWATER HARVESTING



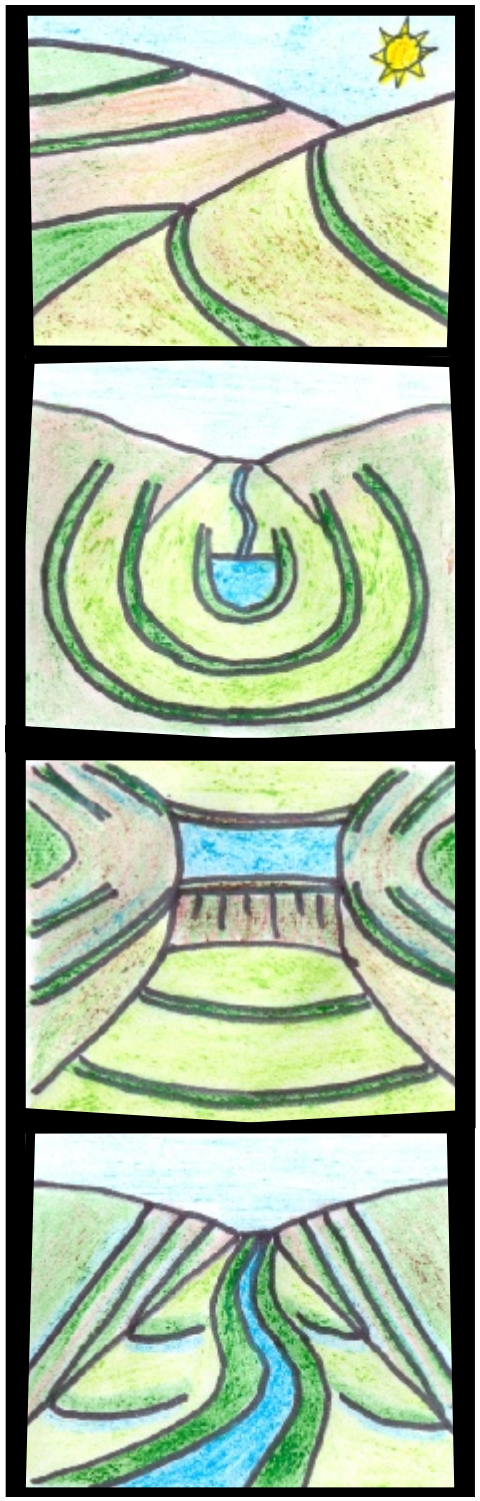
Progressive benefits from Swales	No Swales	Swales	Swales & Mulching
Rainwater harvesting	None	Good	Very good
Soil erosion	Bad	Very little	Contained
Water table	Low	Good	Very good
Moisture retention	Low	Good	Very good
Crop yields	Low	Good	Very good

All agricultural projects rely on direct and/or indirect rainfall of sorts to produce crops. Direct rainfall benefits what is commonly know as run-off or conservation agriculture, whilst indirect rainfall is used in irrigation schemes that make use of any combination of boreholes, canals, weirs, dams and pumping systems. The former generally entails low infrastructure irrigation systems whilst the latter cannot be undertaken without a heavy investment in infrastructure.

An important criteria in assessing the sustainability of irrigation schemes is their effect on local aquifers, the consequential effects to natural riverine ecosystems, and, the cost of infrastructure maintenance. Whilst run-off / conservation agriculture generally replenishes aquifers, the same cannot generally be said about boreholes, canals, weirs, dams and pumping systems. For this reason, run-off / conservation agriculture is an appropriate entry level for developing small grower groups, especially since keyline rainwater harvesting systems rely on low cost but effective infrastructure and are relatively cheaper to maintain. Furthermore, keyline rainwater harvesting systems also promote best practices for landcare management and replenish aquifers. An example of keyline catchment dams is illustrated in the top right figure whilst the benefits of swales for rainwater harvesting are shown in the figures to the left and right.



Keyline dams & rainwater harvesting landscape



6. HOLISTIC DEVELOPMENT APPROACH

Critical Success Factor	To ensure that all facets of developing SGGs are accommodated.
Action Plans	• Plan for Site Infrastructure • Plan for Training & Mentoring • Plan for Organic & Fair Trade Certification • Plan for ongoing Marketing & Distribution
KPIs / Deliverables	Comprehensive development programme.

HOLISTIC LIFE CYCLE DEVELOPMENT PROCESS

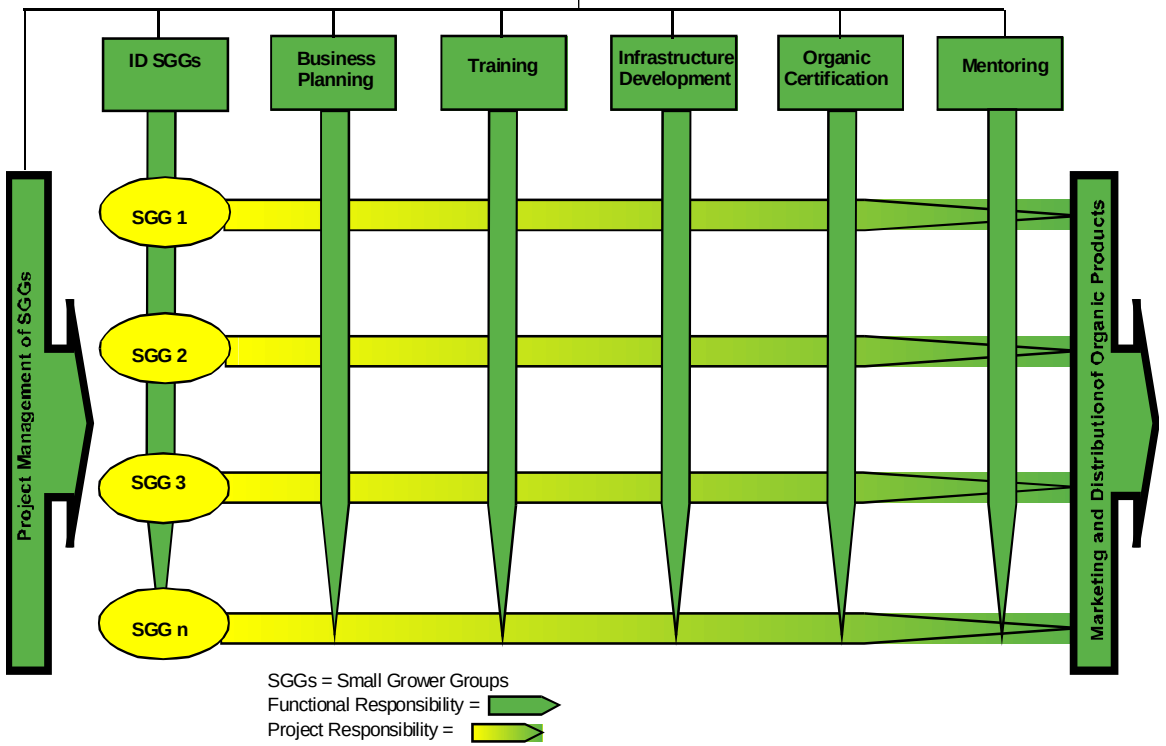
Sadly, the track record of government funded projects in the emerging agricultural sector for historically disadvantaged communities shows that there are many more failures than success stories for many reasons that are beyond the scope of this development plan to discuss. Nevertheless, in order to overcome the potential for project failure within the emerging agricultural sector, Zulu Organics has been established in order to provide a holistic life cycle development service that entails the following activities;-

- Identification of SGGs.
- Preparation of business plans to access funding for development.
- Provision of accredited training.
- Development of site infrastructure, such as, keyline and rainwater harvesting systems, and, provision of plant material.
- Organic certification.
- Mentoring and support.
- Marketing and distribution of organic produce.
- Establishment of Farmers Support Centres, including farmers co-operatives and satellite distribution centres.

The organisational structure of Zulu Organics shown to the right is a matrix driven project management organisation which shows the whole life cycle development process for SGGs from the preparation of their business plans, training, development of infrastructure, certification, mentoring and marketing.

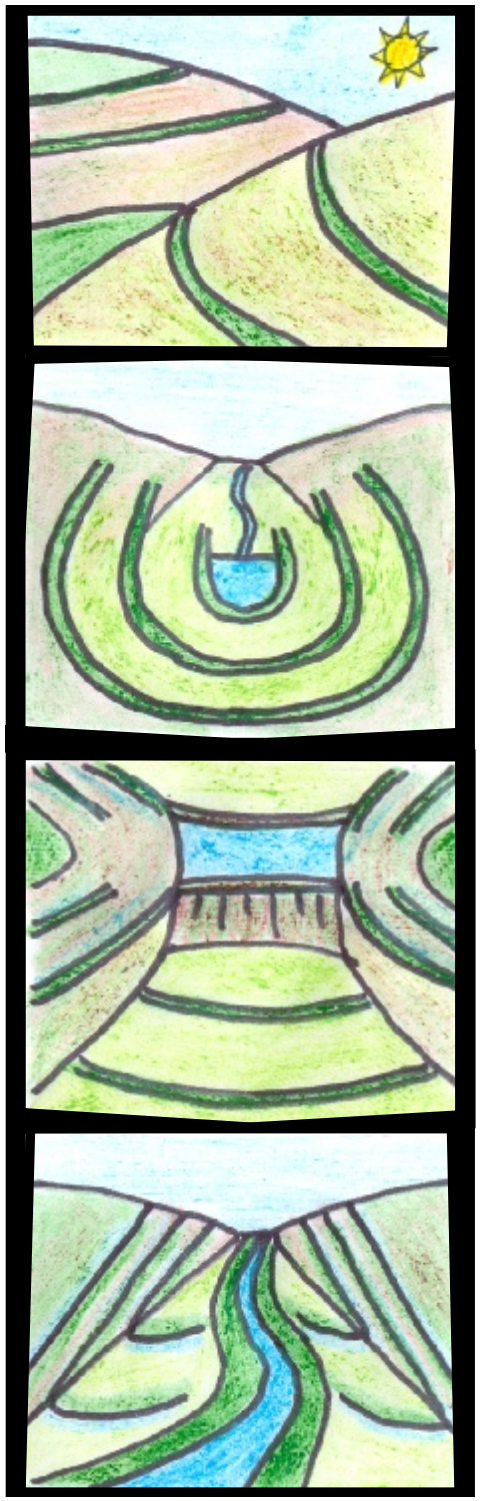
zuluorganics

Matrix Driven Project Management Structure



Development Programme for a SGG of 50 farmers

#	Task	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	ID SGGs												
2	Business Planning												
3	Training												
4	Site Planning & Survey												
5	Site infrastructure												
6	Initial crop production												
7	Organic Certification												
8	Site supervision												
9	Initial Mentoring												
10	Plan & Design Primary Co-op												
11	Establish Primary Co-op												
12	Marketing & Distribution												
13	Project Management												
14	Project Administration												
15	Extension Services												



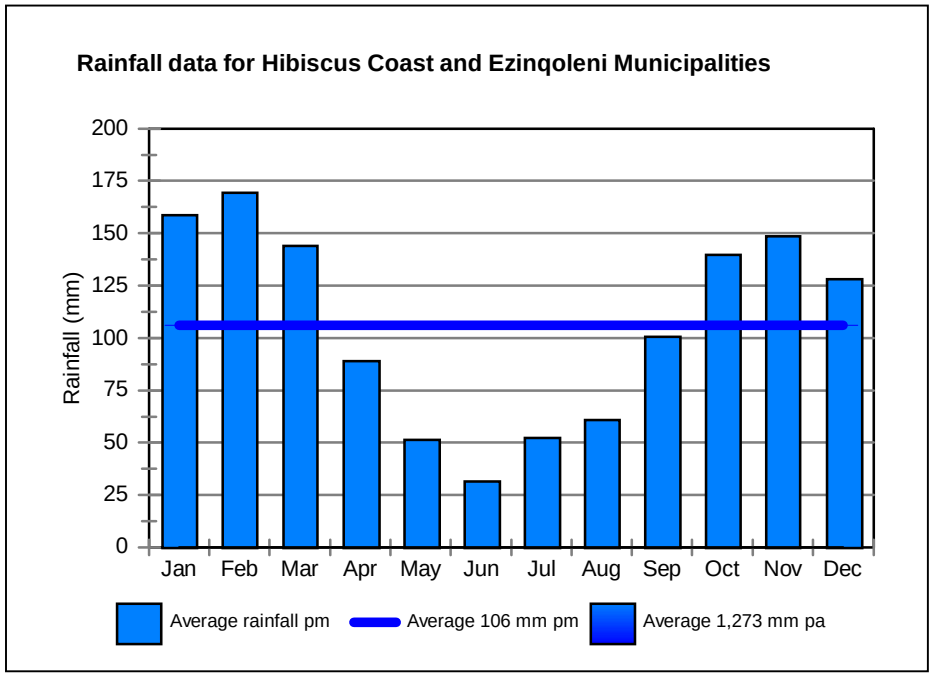
7. RAIN-FED IRRIGATION

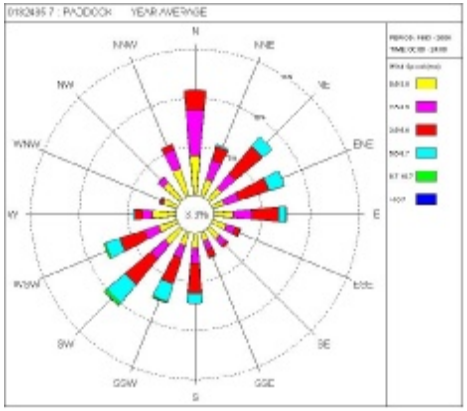
Critical Success Factor	To provide irrigation for 3 crops per annum.
Action Plans	• Analyse weather data • Determine water requirement scenarios • Determine irrigation requirements for 2 and 3 crops pa
KPIs / Deliverables	Irrigation analysis for 7 project areas.

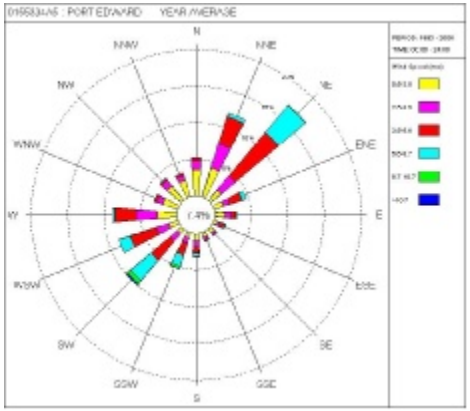
WEATHER DATA

This section builds on the principles of sustainable agriculture described beforehand and starts the technical planning process with the analysis of irrigation requirements. This section contains the technical analysis of local weather data in order to determine irrigation requirements for a 1-Crop, 2-Crop and 3-Crop cycle per annum for each SGG. Whilst this is not an exact science, the estimates for irrigation requirements entails an iterative process in the preparation of land use plans which are contained in the next section.

Weather data was acquired from the South African Weather Service via data recording stations in the Paddock, Margate and Port Shepstone areas. These were the only three weather stations within the general project area but are considered fairly representative of general weather patterns in the area. The data received was for; Paddock from 1975 to 2005; Margate from 1993 to 2005; and, Port Shesptone from 1975 to 1996. Not all the data was “clean” data and there were a few years where it was obvious that there were gaps in record keeping. Nevertheless, by omitting the suspect data, a ten year average for each area was calculated which did not differ markedly amongst each other, hence the consolidated average rainfall shown in the graph below.







The South African Weather Service also provided a wind rose for the past 10 years for the Paddock and the Port Edward areas, as shown in the above figures. The wind rose for Port Shepstone represents the coastal belt and highlights the predominantly strong north easterly and south westerly winds, whilst in the Paddock area the winds are slightly more moderate and dispersed. In any event, the winds are significantly strong to merit the establishment of wind breaks in order to mitigate against wind burn where necessary. The South African Weather Service also confirmed that there was no occurrence of frost in the project area.

CROP CYCLE SCENARIOS & WATER REQUIREMENTS

Due to the vast permutation of crops and associated water requirements, a simplistic approach is used to show an average crop cycle water requirement based on realistic evapotranspiration rates as shown in the table below. Herein, the average crop cycle is four months from the initial planting to the harvesting and land preparation for the next crop. Another average is, 200 mm of water per ha required during the relatively hotter months from September to April, and, 150 mm of water per ha required from May to August.

Typical Crop Cycle

Crop Phase	M1	M2	M3	M4
Plant Seedlings & Initial Growth				
Vegetative Growth				
Vegetative &Flowering				
Fruiting				
Fruiting and Harvesting				
Harvesting and Land Prep for next Crop				

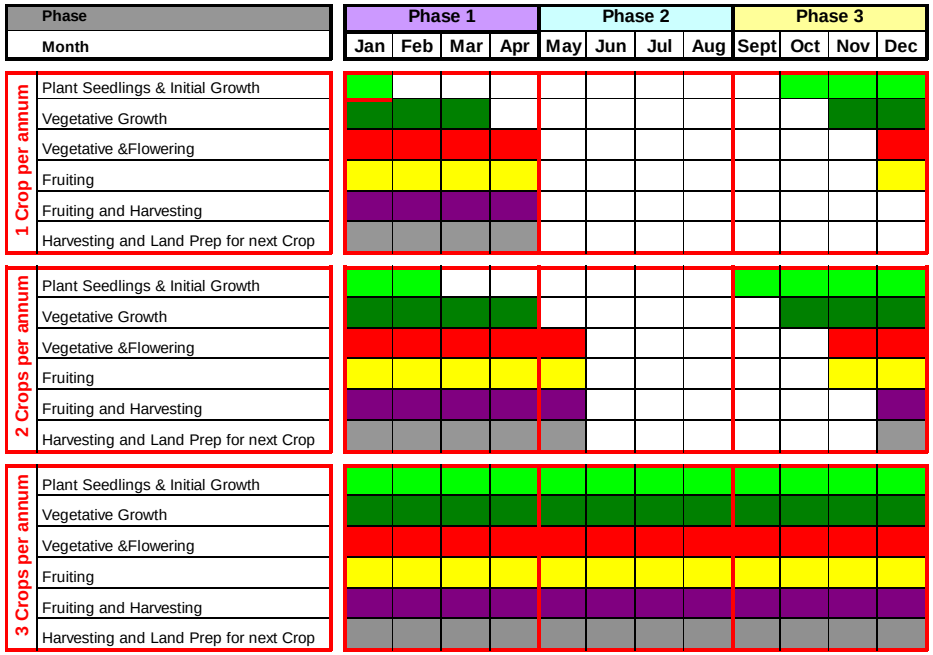
Water Requirements Et/Eo	**0.4**	**0.8**	**1**	**0.7**
Hot months - Water Usage (mm/ha)	**80**	**160**	**200**	**140**
Cold months - Water Usage (mm/ha)	**60**	**120**	**150**	**105**

Note :- Et/Eo = Evapotranspiration ratios

CROP CYCLE SCENARIOS & WATER REQUIREMENTS

The typical crop cycle water requirements conveyed in previous “crop cycle” table is now projected for a 1-Crop, 2-Crop and 3-Crop per annum cycle in the table below, which postulates that;-

- 1-Crop per annum relies on dry land cultivation with no minimal rainwater harvesting systems, wherein, planting occurs from October to January and harvesting from January to April.
- 2-Crops per annum relies on rainwater harvesting systems to extend the farming season with plantings possible from September to February and harvesting from December to May.
- 3-Crops per annum relies on irrigation systems to farm all year round and produce constant yields throughout the year.



IRRIGATION CALCULATIONS

The crop cycle scenarios on the left are now expanded in order to calculate the amount of water required per annum. A key assumption of these calculations is that a typical farm is divided into 4 blocks to simulate the distribution of farming resources. In other words, it is unlikely that any farm operation will prepare its entire cultivated area at the start of the rainy season, and then, harvest the entire crop at the same time. This has never been possible, and any farmer spreads resources according to availability. The division into 4 blocks also illustrates how the crop cycle fits into a 1-Crop, 2-Crop and 3-Crop per annum cycle in order to estimate the distribution of water requirements throughout the year, as shown in the table below and the two tables on the next page

1 CROP PER ANNUM

Phase		Phase 1				Phase 2				Phase 3			
Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Block 1 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	0.4	0.8	1	0.7								
	Water Usage + or - in mm.	80	160	200	140								
Block 2 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	0.7									0.4	0.8	1
	Water Usage + or - in mm.	140									80	160	200
Block 3 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	1	0.7									0.4	0.8
	Water Usage + or - in mm.	200	140									80	160
Block 4 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	0.8	1	0.7									0.4
	Water Usage + or - in mm.	160	200	140									80

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Totals
Average Water Requirement	145	125	85	35	0	0	0	0	0	20	60	110	580
Ave.Rainfall in mm.	158	169	144	89	51	31	52	61	100	140	149	128	1,273
Excess or deficit (+ or -)	13	44	59	54	51	31	52	61	100	120	89	18	693
Volume of Water required/ha (litres)	0	0	0	0	0	0	0	0	0	0	0	0	0
Volume of Water required/ha (Kl)	0	0	0	0	0	0	0	0	0	0	0	0	0

Summary
For 1 crop per annum, **no extra** water per hectare is required in addition to average rainfall.

IRRIGATION CALCULATIONS

2 CROPS PER ANNUM

	Phase	Phase 1				Phase 2				Phase 3			
	Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Block 1 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	0.4	0.8	1	0.7					0.4	0.8	1	0.7
	Water Usage + or - in mm.	80	160	200	140					80	160	200	140
Block 2 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	0.7	0.4	0.8	1	0.7					0.4	0.8	1
	Water Usage + or - in mm.	140	80	160	200	105					80	160	200
Block 3 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	1	0.7									0.4	0.8
	Water Usage + or - in mm.	200	140									80	160
Block 4 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	0.8	1	0.7									0.4
	Water Usage + or - in mm.	160	200	140									80

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Totals
Average Water Requirement	145	145	125	85	26	0	0	0	20	60	110	145	861
Ave.Rainfall in mm.	158	169	144	89	51	31	52	61	100	140	149	128	1,273
Excess or deficit (+ or -)	13	24	19	4	25	31	52	61	80	80	39	-17	412
Volume of Water required/ha (litres)	0	0	0	0	0	0	0	0	0	0	0	169,500	169,500
Volume of Water required/ha (Kl)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**169**	**169**

Summary

For 2 crops per annum, **169 kilo-litres** of water per hectare is required in addition to average rainfall.

3 CROPS PER ANNUM

	Phase	Phase 1				Phase 2				Phase 3			
	Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Block 1 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	0.4	0.8	1	0.7	0.4	0.8	1	0.7	0.4	0.8	1	0.7
	Water Usage + or - in mm.	80	160	200	140	60	120	150	105	80	160	200	140
Block 2 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	0.7	0.4	0.8	1	0.7	0.4	0.8	1	0.7	0.4	0.8	1
	Water Usage + or - in mm.	140	80	160	200	105	60	120	150	140	80	160	200
Block 3 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	1	0.7	0.4	0.8	1	0.7	0.4	0.8	1	0.7	0.4	0.8
	Water Usage + or - in mm.	200	140	80	160	150	105	60	120	200	140	80	160
Block 4 - 1 ha	Plant Seedlings & Initial Growth												
	Vegetative Growth												
	Vegetative &Flowering												
	Fruiting												
	Fruiting and Harvesting												
	Harvesting and Land Prep for next Crop												
	Water Requirements Et/Eo	0.8	1	0.7	0.4	0.8	1	0.7	0.4	0.8	1	0.7	0.4
	Water Usage + or - in mm.	160	200	140	80	120	150	105	60	160	200	140	80

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Totals
Average Water Requirement	145	145	145	145	109	109	109	109	145	145	145	145	1,595
Ave.Rainfall in mm.	158	169	144	89	51	31	52	61	100	140	149	128	1,273
Excess or deficit (+ or -)	13	24	-1	-56	-58	-77	-57	-48	-45	-5	4	-17	-322
Volume of Water required/ha (litres)	0	0	9,300	561,200	575,400	774,400	565,900	479,900	445,600	54,400	0	169,500	3,635,600
Volume of Water required/ha (Kl)	**0**	**0**	**9**	**561**	**575**	**774**	**566**	**480**	**446**	**54**	**0**	**169**	**3,636**

Summary

For 3 crops per annum, **3,636 kilo-litres** of water per hectare is required in addition to average rainfall.

IRRIGATION ANALYSIS

The irrigation calculations from the previous page are now used to estimate the water required for each project area depending on the number of crops to be grown per annum. These water requirements per project area are shown in the tables on the right depending on whether "potholes" on ridges are used or not. It is estimated that potholes can harvest and retain a substantial amount of water thereby reducing water requirements by at least 50%. Refer to the earlier section on limited till farming for an illustration of the ridging system with potholes.

It suffices to conclude that in order to grow 3-Crops per annum, some 3,636 Klitres of irrigation is required per ha, whilst half of that, namely 1,818 Klitres per ha, is required if potholes are used on the ridges. If only 2-Crops per annum are to be grown, then a relatively small amount of additional irrigation is required, provided that rainwater harvesting systems such as swales are established. Naturally, the aspiration is to achieve three crops per annum since this ultimately generates the highest income per ha.

The irrigation analysis contained in the tables on the right was used in an iterative process with the land use plans generated in the next section in order to design the most appropriate water storage / irrigation solution for each project area.

Irrigation required without ridge potholes

No.	SGG	Total Area	3 Crops	2 Crops	1 Crop
		ha	Klitres	Klitres	Klitres
1	Mtengwane	42.6	154,877	7,221	0
2	Bhoboyi	5.6	20,359	949	0
3	Zamokuhle	9.6	34,902	1,627	0
4	Entabeni	5.2	18,905	881	0
5	Horseshoe	36.5	132,699	6,187	0
6	Masikhuthazane	14.0	50,898	2,373	0
7	Nobamba	21.5	78,165	3,644	0

Irrigation required with ridge potholes

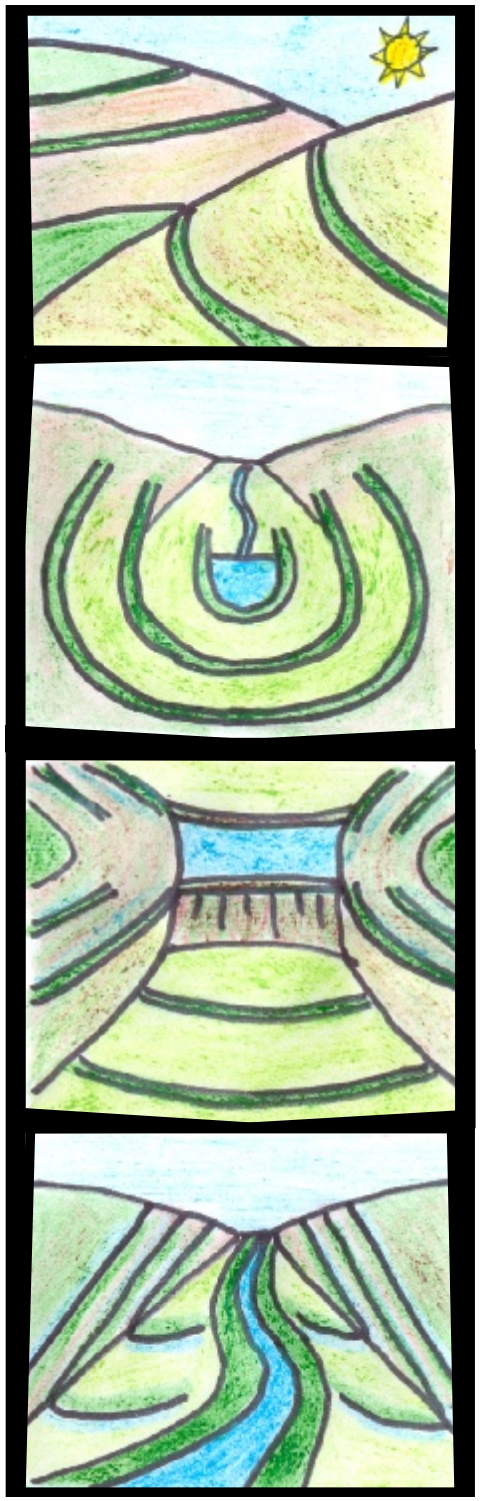
No.	SGG	Total Area	3 Crops	2 Crops	1 Crop
		ha	Klitres	Klitres	Klitres
1	Mtengwane	42.6	77,438	3,610	0
2	Bhoboyi	5.6	10,180	475	0
3	Zamokuhle	9.6	17,451	814	0
4	Entabeni	5.2	9,453	441	0
5	Horseshoe	36.5	66,350	3,093	0
6	Masikhuthazane	14.0	25,449	1,186	0
7	Nobamba	21.5	39,083	1,822	0

Water storage required for 3-Crops pa without ridge potholes

No.	SGG	Total Area	Irrigation Volume	Catchment Area	Rainfall	Seepage to water table	Catchment Volume	Surplus / Deficit	Storage Capacity	Irrigation Solution
		ha	Klitres	ha	mm	%	Klitres	Klitres	Klitres	
1	Mtengwane	42.6	154,877	32.3	1,273	50.0%	205,573	50,697	232,315	Keyline berms & dams
2	Bhoboyi	5.6	20,359	12.5	1,273	50.0%	79,556	59,197	30,539	Keyline berms & dam
3	Zamokuhle	9.6	34,902	14.0	1,273	50.0%	89,103	54,201	52,353	Keyline berms & wells
4	Entabeni	5.2	18,905	4.1	1,273	50.0%	26,094	7,189	28,358	Keyline berms & dam
5	Horseshoe	36.5	132,699	20.0	1,273	50.0%	127,290	-5,409	199,049	Keyline berms and reservoir
6	Masikhuthazane	14.0	50,898	38.4	1,273	50.0%	244,397	193,498	76,348	Keyline berms & dam
7	Nobamba	21.5	78,165	21.7	1,273	50.0%	138,110	59,944	117,248	Keyline berms & dams

Water storage required for 3-Crops pa with ridge potholes

No.	SGG	Total Area	Irrigation Volume	Catchment Area	Rainfall	Seepage to water table	Catchment Volume	Surplus / Deficit	Storage Capacity	Irrigation Solution
		ha	Klitres	ha	mm	%	Klitres	Klitres	Klitres	
1	Mtengwane	42.6	77,438	32.3	1272.9	50.0%	205,573	128,135	116,157	Keyline berms & dams
2	Bhoboyi	5.6	10,180	12.5	1272.9	50.0%	79,556	69,377	15,270	Keyline berms & dam
3	Zamokuhle	9.6	17,451	14.0	1272.9	50.0%	89,103	71,652	26,176	Keyline berms & wells
4	Entabeni	5.2	9,453	4.1	1272.9	50.0%	26,094	16,642	14,179	Keyline berms & dam
5	Horseshoe	36.5	66,350	20.0	1272.9	50.0%	127,290	60,940	99,525	Keyline berms and reservoir
6	Masikhuthazane	14.0	25,449	38.4	1272.9	50.0%	244,397	218,948	38,174	Keyline berms & dam
7	Nobamba	21.5	39,083	21.7	1272.9	50.0%	138,110	99,027	58,624	Keyline berms & dams



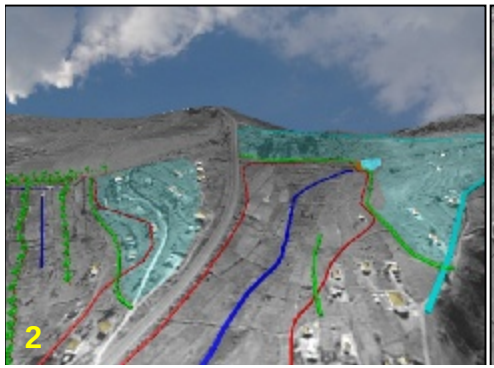
8. COST EFFECTIVE FARM DESIGNS

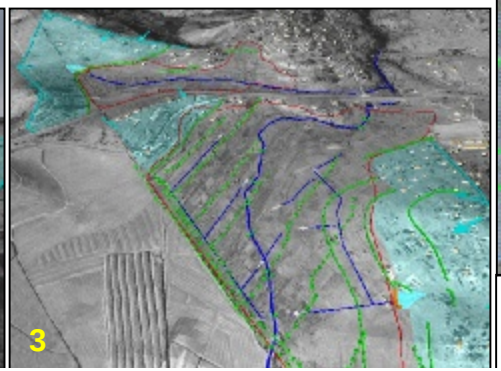
Critical Success Factor	To apply low external input sustainable agricultural designs.
Action Plans	• Design low tech and sustainable irrigation systems • Design other ancillary site infrastructure • Cost estimates for site infrastructure
KPIs / Deliverables	7 Land use plans covering 135 ha.

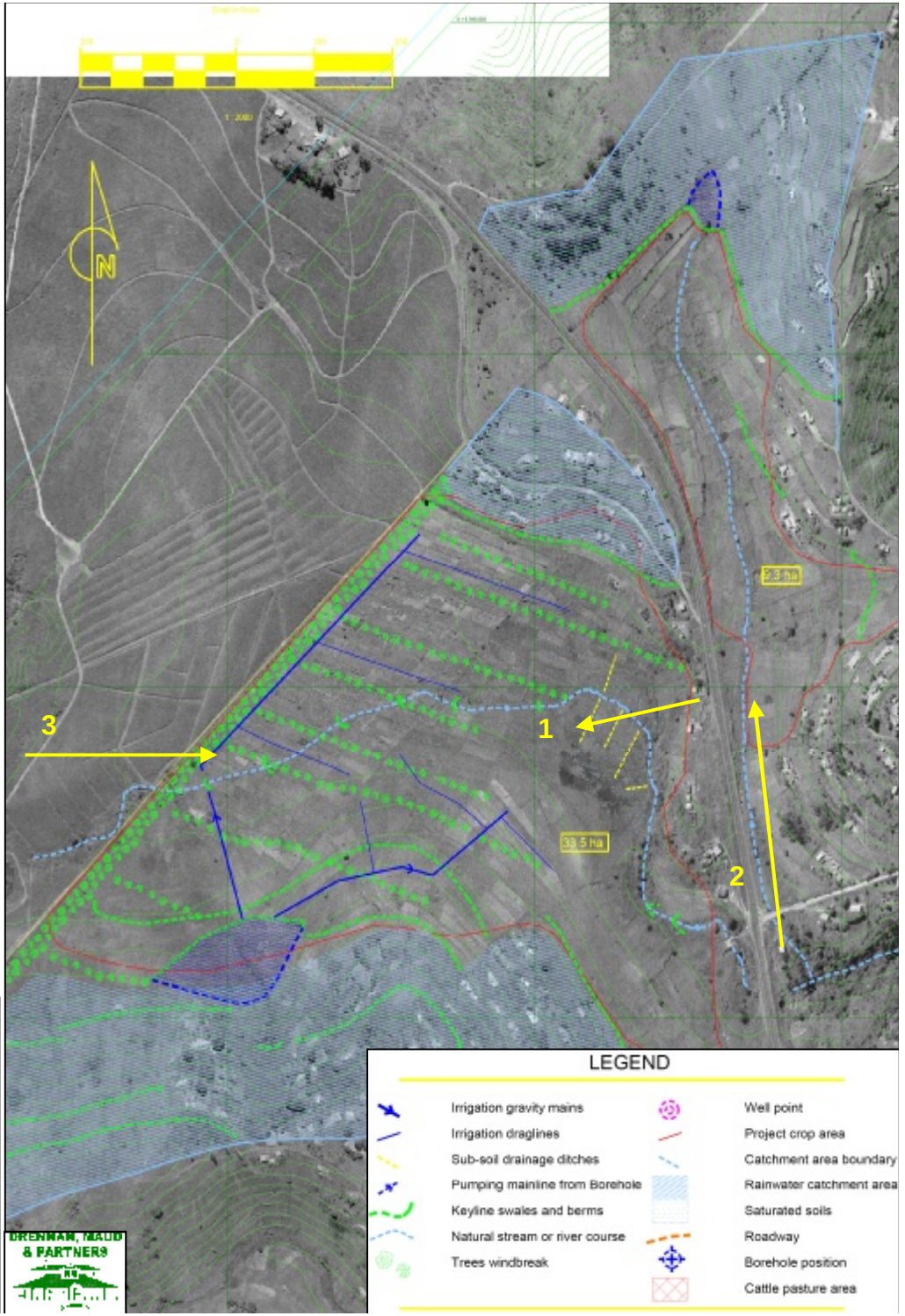
MTENGWANE FARMERS GROUP
HIBISCUS COAST MUNICIPALITY

The Mtengwane Project is located within the KwaNdwalane Traditional Authority in Hibiscus Coast Municipality and is an existing community garden which needs substantial assistance for it to achieve its full potential. The project area has an existing PTO granted by the KwaNdwalane Traditional Authority. Current membership is 67. This project comprises two areas that straddle the road to Oribi Gorge. The larger area (View 3) is approximately 33.3 ha in extent while the smaller portion (View 2) is approximately 9.3 ha. Both project areas have non perineal water courses running through their centres which are drawn upon for irrigation. However, both areas lack an irrigation system. The larger portion is exposed to both the dry north easterly and cold rain bearing south westerly winds. The larger portion also borders a commercial sugarcane field which harmful fertilizers and pesticides may leach and/or overspray into the project area.

The proposed irrigation system is by means of a keyline catchment dam for each area with gravity fed mains and draglines. It is estimated that the keyline catchment dam for the smaller project area will be more than sufficient to feed this area. However, the larger project area does not have sufficient catchment to harvest rainwater into the proposed catchment dam to continually guarantee the production of 3 crops per annum. For this reason, usage of stored water will need to be highly controlled for this larger project area. A series of shelter belts comprising indigenous trees, such as, acacia, are proposed to mitigate the wind burn from the prevailing winds and leaching / overspray from the adjacent commercial sugarcane field. Hedgerows of napier fodder and vetiver grass should also be grown in between the acacia trees in order to strengthen the wind shelter break. The long roots of the acacia tree and vetiver grass roots will also contribute to soil fertility and provide compost and mulch material.



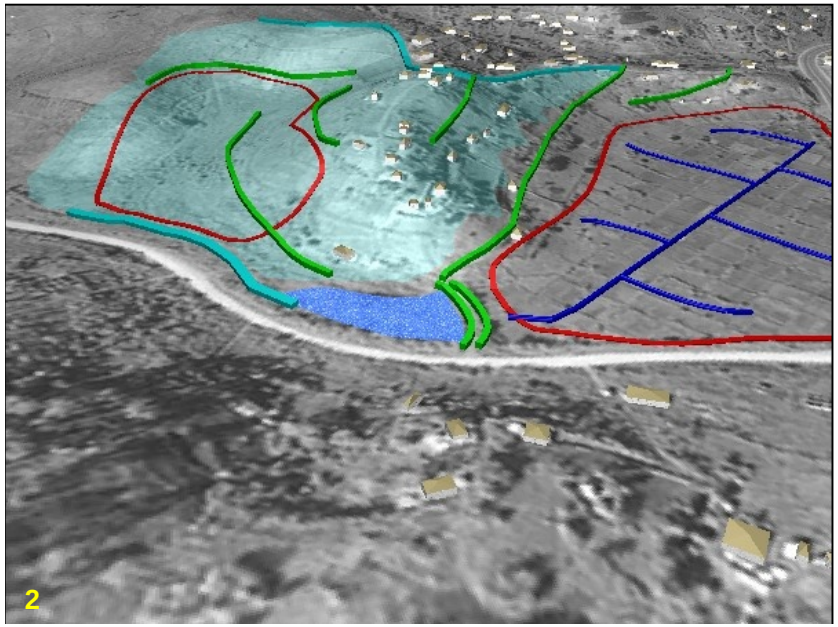


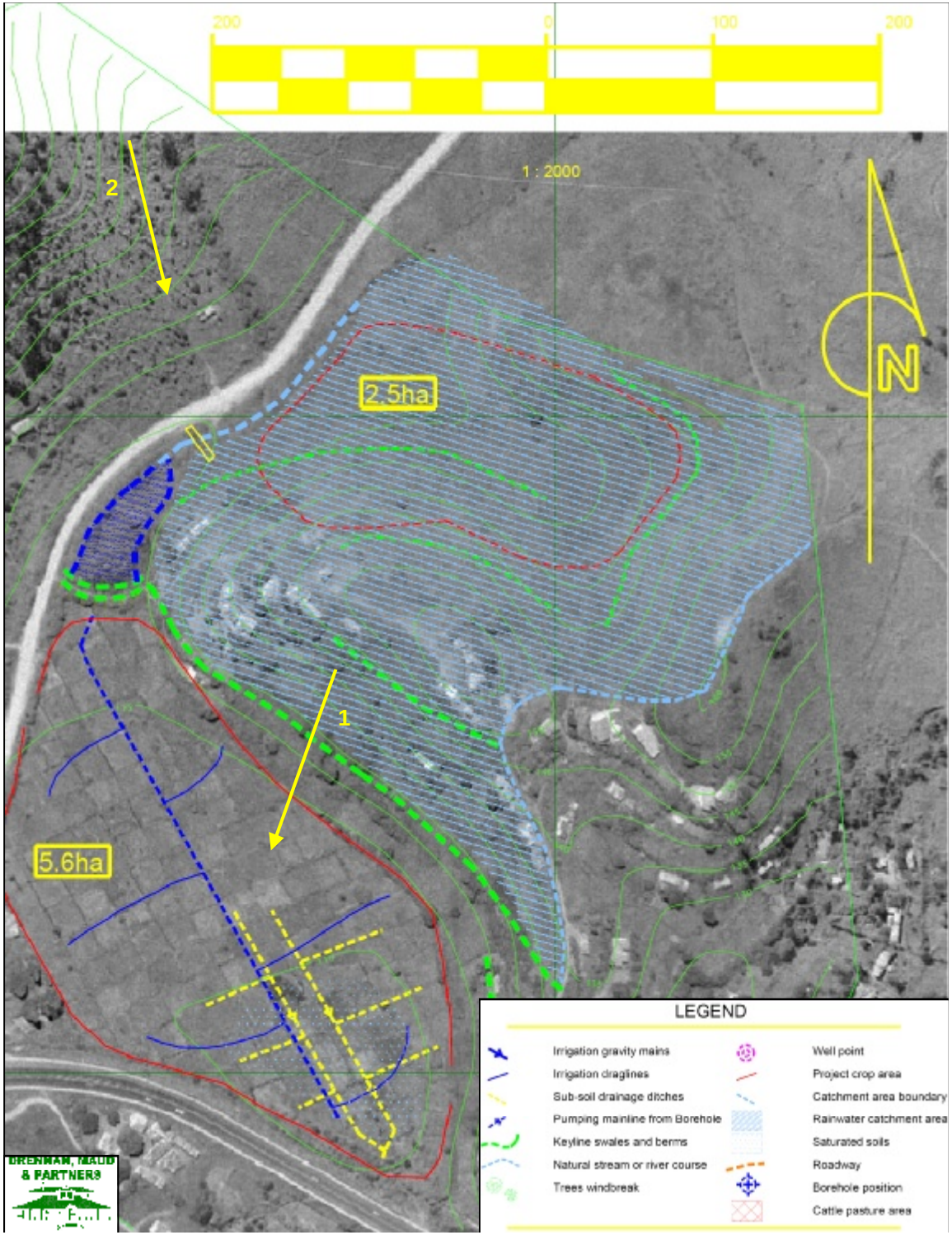


BHOBHOYI FARMERS GROUP
HIBISCUS COAST MUNICIPALITY

The Bhoboyi Project is located within the KwaNdwalane Traditional Authority in Hibiscus Coast Municipality and is an existing community garden with a relatively large membership of 40 considering its small area of 5.6 ha. The project area has an existing PTO granted by the KwaNdwalane Traditional Authority. This project has no irrigation system and lies in a low area that is susceptible to flooding. In order to mitigate against water logged conditions, some drainage ditches are proposed at the lowest point that can then flow into a natural water course.

The harvesting of rainwater from the catchment around this project is limited, hence the need to harvest rainwater from an adjacent valley that is not being used as shown in View 2. This approach will ensure more than adequate rainwater storage into a catchment dam at the head of the project area from where irrigation can be provided via gravity fed mains and draglines.

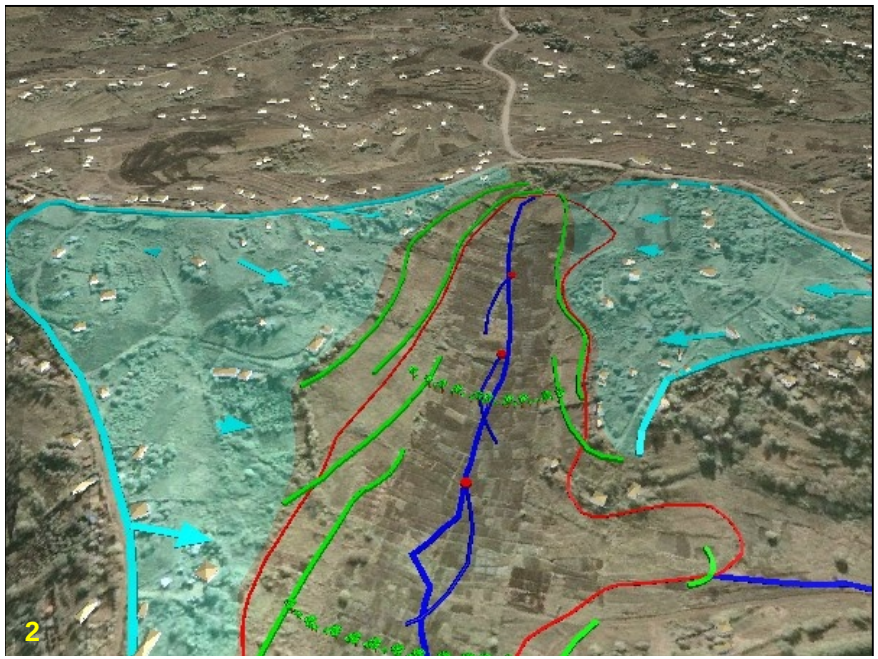


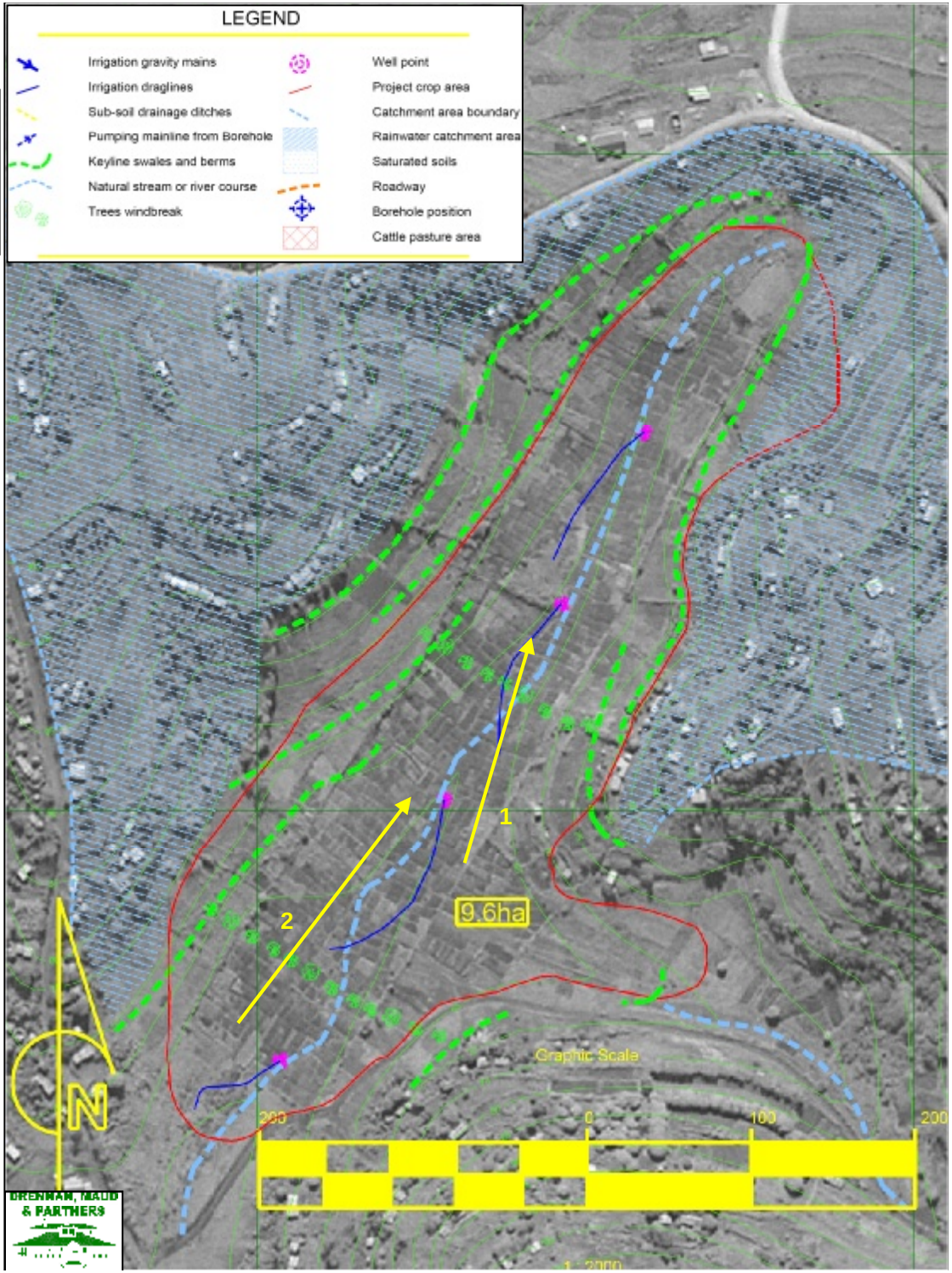


ZAMOKUHLE FARMERS GROUP
HIBISCUS COAST MUNICIPALITY

The Zamokuhle Project is located within the KwaNzimakwe Traditional Authority in Hibiscus Coast Municipality and is an existing community garden with a relatively large membership of 47 considering its size of 9.6 ha. The project area has an existing PTO granted by the KwaNzimakwe Traditional Authority. This project has no irrigation system and lies within two intersecting valleys that both have non perineal water courses. This project area is also susceptible to wind burn from the dry north easterly and cold bearing south westerly winds.

The proposed irrigation system is a series of keyline berms that harvest rainwater upwards towards the head of the valley in order to recharge the non perineal water course. Unfortunately, a small keyline catchment dam cannot be established at the head of this valley due to an existing homestead. However, a series of well points are proposed along the water course in order to abstract water via a hand pump and draglines. A series of tree shelter belts are also proposed perpendicular to the centre line of the valley in order to mitigate against wind burn.

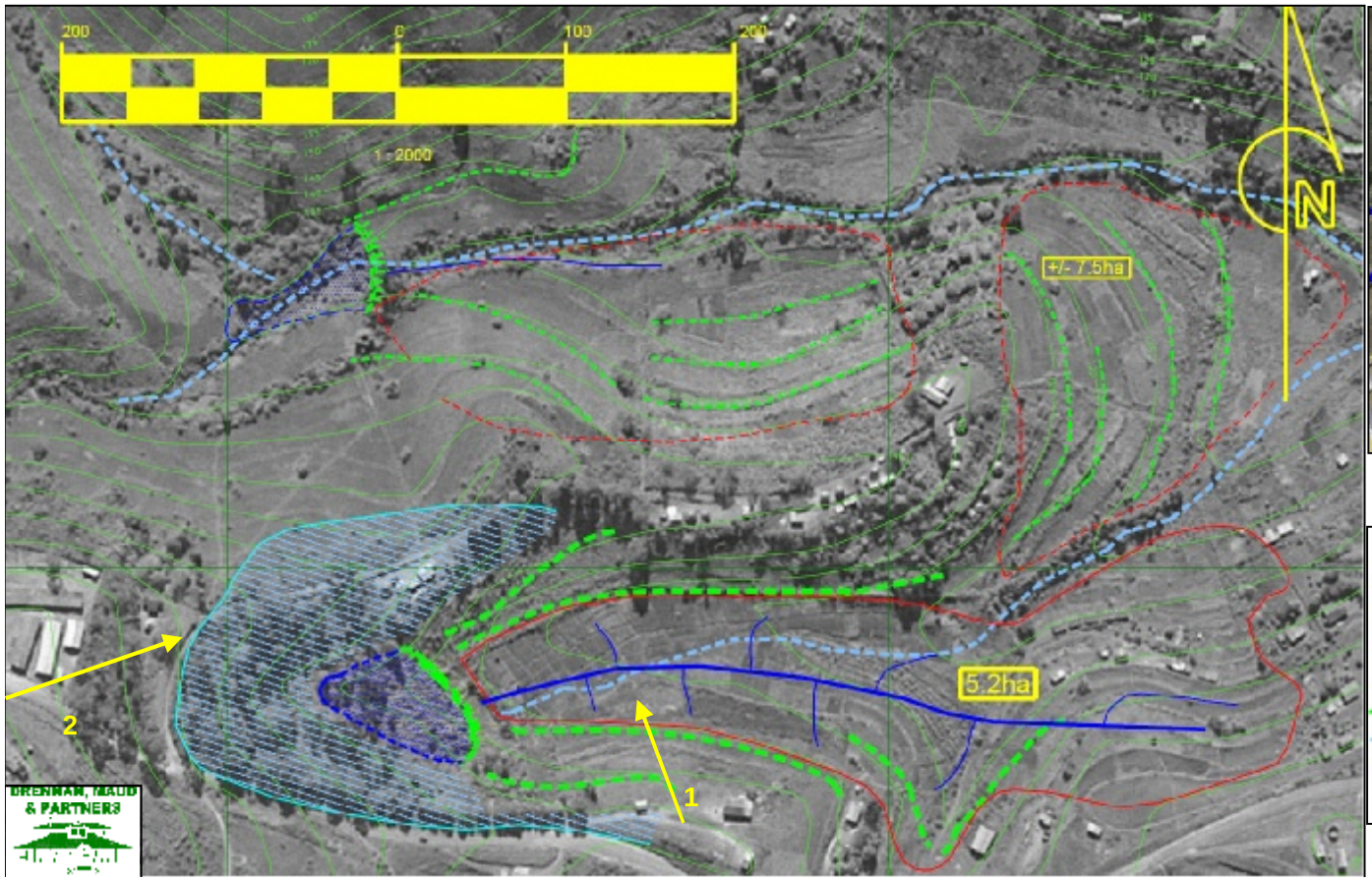


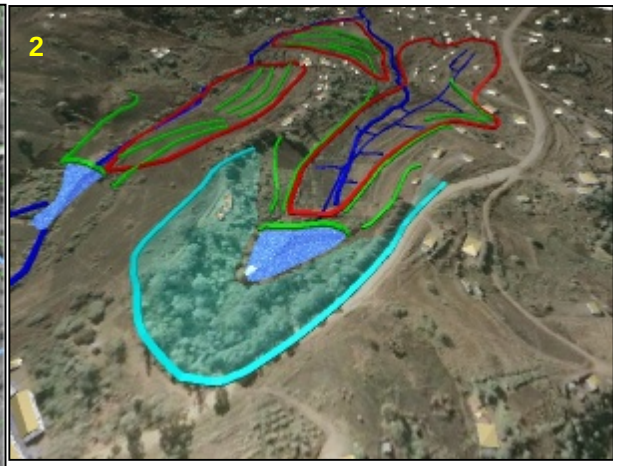


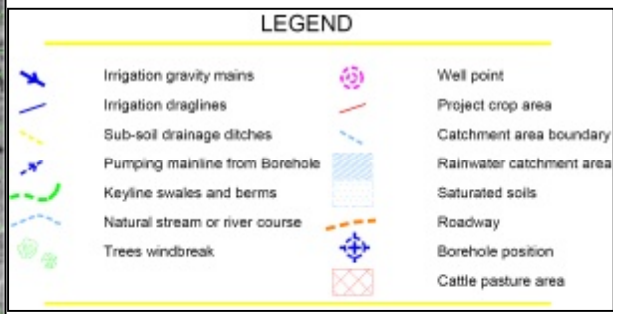
ENTABENI FARMERS GROUP
HIBISCUS COAST MUNICIPALITY

The Entabeni Project is located within the KwaNzimakwe Traditional Authority in Hibiscus Coast Municipality and is an existing community garden of 5.2 ha with a relatively small membership of 15. The project area has an existing PTO granted by the KwaNzimakwe Traditional Authority. This project has did have an irrigation system fed by a keyline catchment dam. However, the keyline berms and dam have been poorly maintained and require substantial rehabilitation to restore this project to its full potential. It also appears that some areas of the original agricultural scheme have now been encroached by new homesteads.

Nonetheless, this project can easily be rehabilitated by re-establishing the keyline catchment dam and keyline berms. Irrigation can then be provided via gravity fed mains and draglines from the catchment dam. There is also potential to expand this scheme to the adjacent valley (shown left of project area in View 2) in order to utilize additional land down stream of these two valleys.



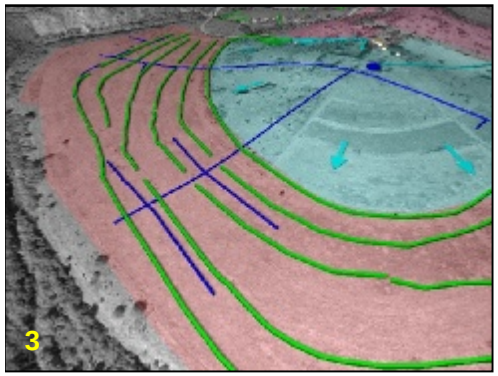


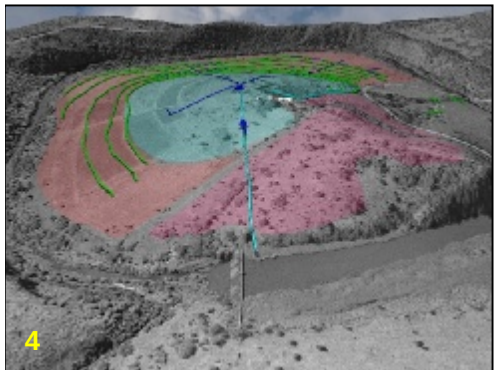


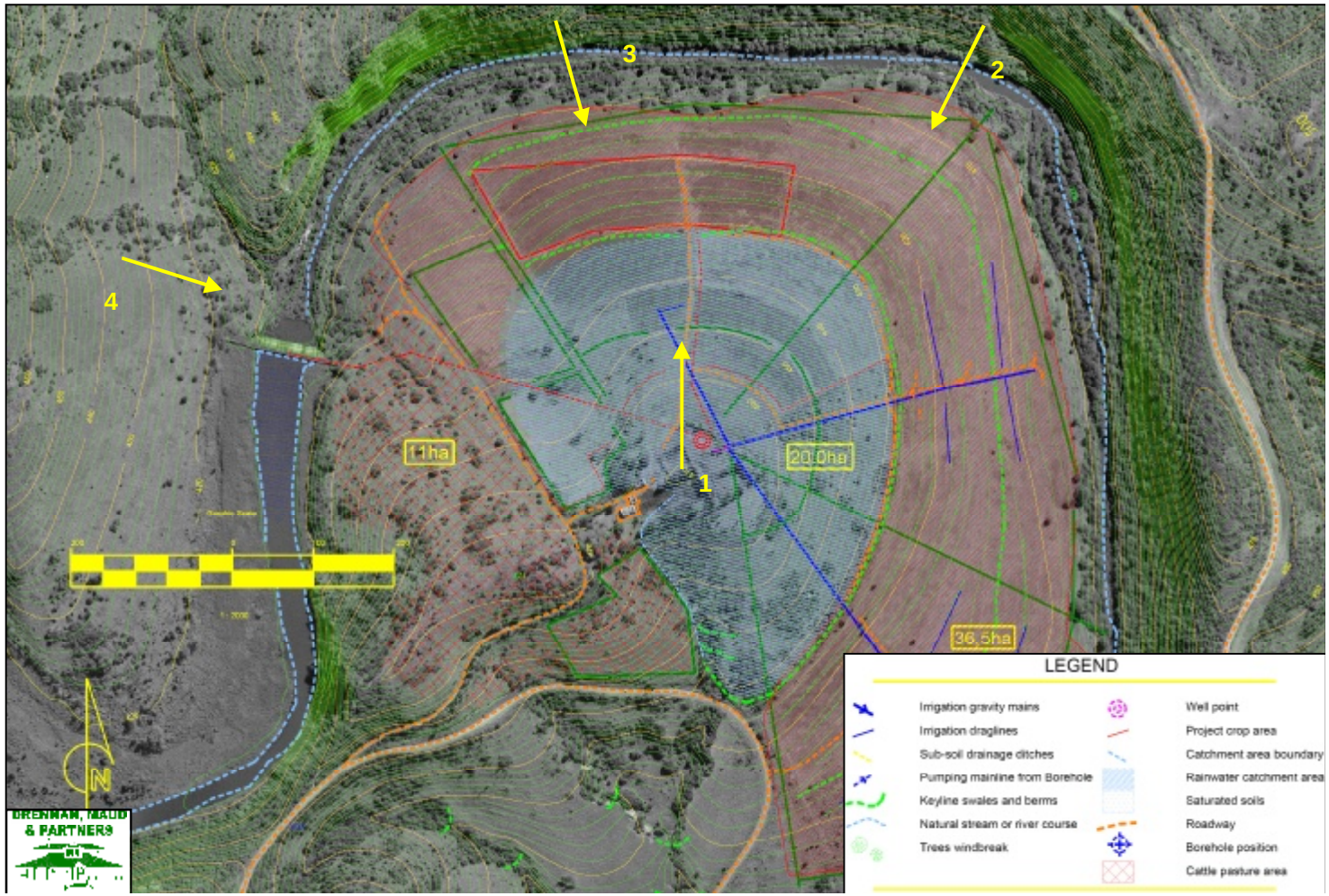
HORSESHOE FARMERS GROUP
EZINQOLENI MUNICIPALITY

The Horseshoe Farm Project is located in Ezinqoleni Municipality and was an existing commercial farm that has been acquired by the municipality. The farm can cultivate approximately 36.5 ha of crops and is almost encircled by the Mzimkhulwana River, hence its name, Horseshoe Farm. This farm was not used for some 5 years before the municipality installed an irrigation scheme and organised a representative group of 68 beneficiaries from the municipal area to farm some 6 ha of the land. The irrigation scheme abstracts water from a dam on the Mzimkhulwana River and stores this water in a reservoir at a high point on the farm before being gravity fed to a sprinkler system. This project has tremendous potential to realise its full potential and become a model training farm and show piece for community based agriculture in the region. The proposals to realise this potential include an extension of the irrigation system by constructing an additional reservoir and extending the gravity fed mains and draglines to the balance of the farm area.

However, the top portion of the farm should be used as a rainwater catchment area bordered by keyline berms that ensure good rainwater penetration to the area below that is used for cultivation. A dedicated area for cattle pasture is also proposed. However, it is envisaged that cattle also be used in a complementary manner with the crop rotation system in the cultivated areas in order to promote a symbiotic relationship between farm animals and croplands. The resulting fully developed farm will yield approximately 36.5 ha of cultivated land, 11.0 ha of cattle pasture, and, 20.0 ha of rainwater catchment wherein orchards of nut and fruit trees can be established. The top of the farm where the old farm house and outbuildings were located should also be rebuilt to house permanent staff and trainees.



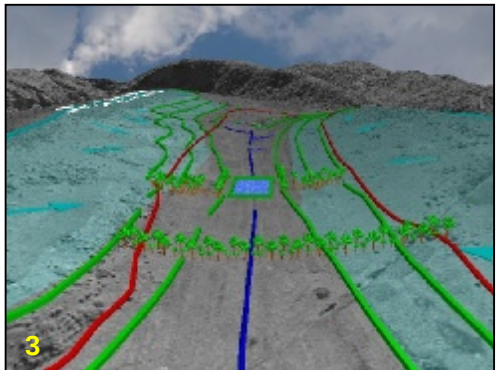


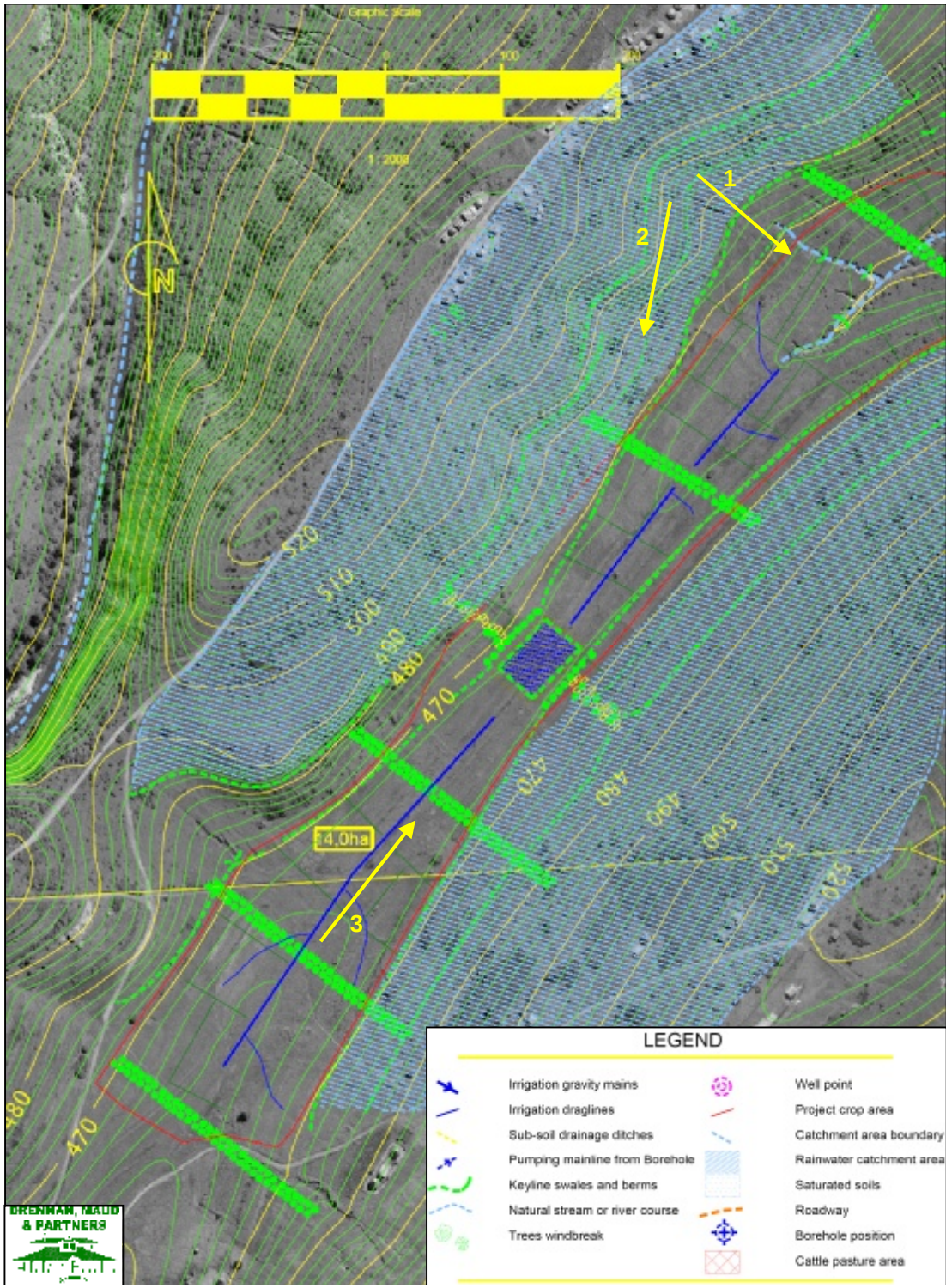


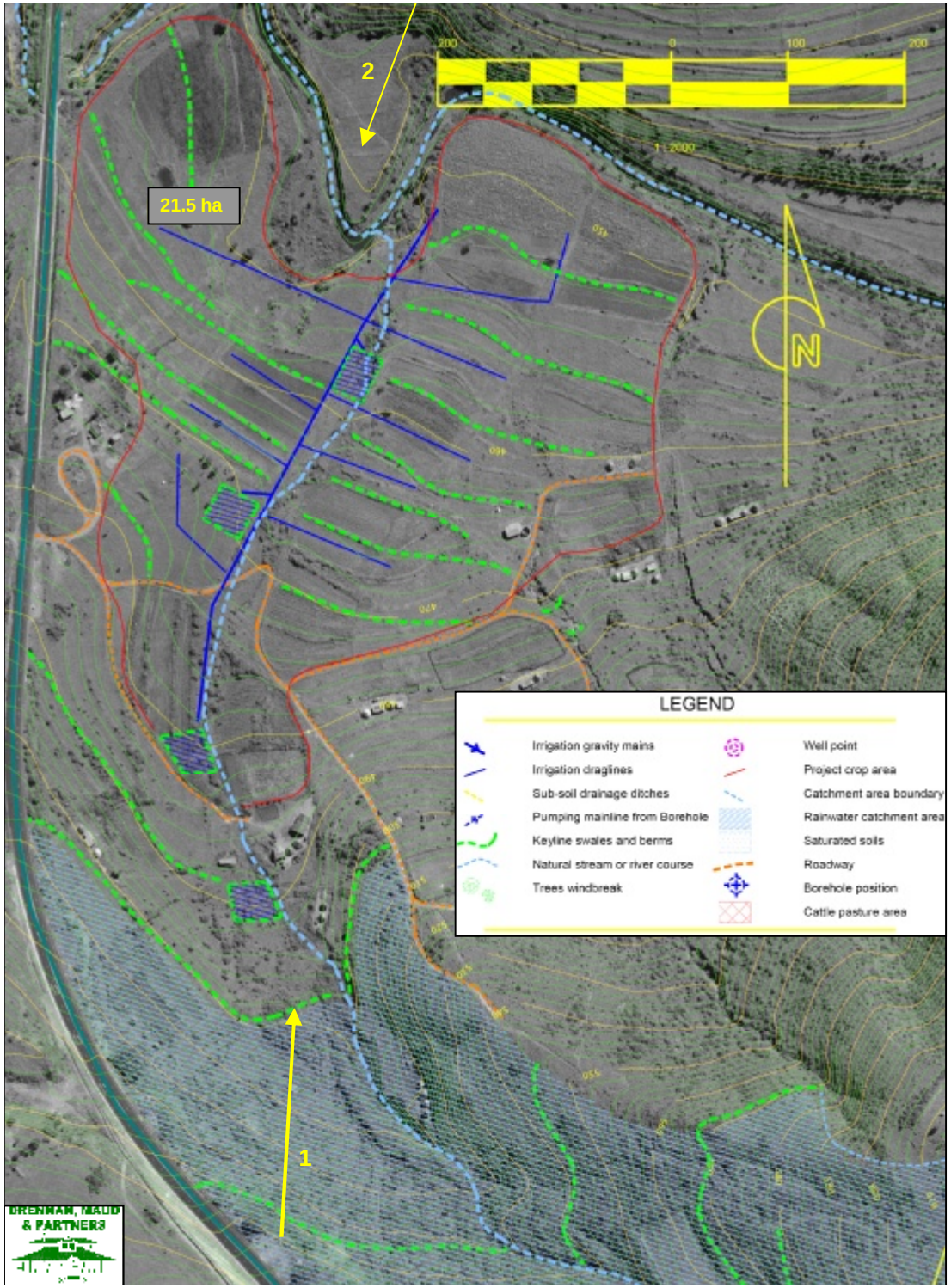
MASIKHUTHAZANE FARMERS GROUP
EZINQOLENI MUNICIPALITY

The Masikhuthazane Project is located in the Ezinqoleni Municipality and is also know by the local clan name of KwaBlose, whose 25 members also own the land but are considered part of the KwaNyuswa Traditional Authority. The project area is contained in a long valley within two ridges with a “saddle” in the middle. The project area comprises some 14 ha which has not been actively cultivated except for a small area that is now hardly used. The Blose clan have all settled along one of the ridges and cultivate small areas adjacent to their homesteads. The area is subject to the dry north easterly and cold rain bearing south westerly winds.

The proposed irrigation system is to create a keyline catchment dam at the saddle point of the valley. The rainwater catchment area can be extended via keyline berms that feed the dam in the saddle area. The irrigation system comprises gravity fed mains and draglines. A series of tree shelter belts are also proposed to mitigate against wind burn. The vast catchment area alongside the two ridges is envisaged to supply more than sufficient water for 3 crops per season. Given this ample supply of catchment water, the area can ultimately be propagated with fruit and nut orchards.



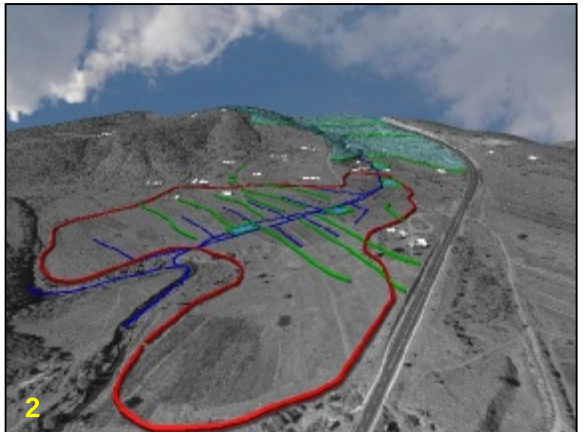


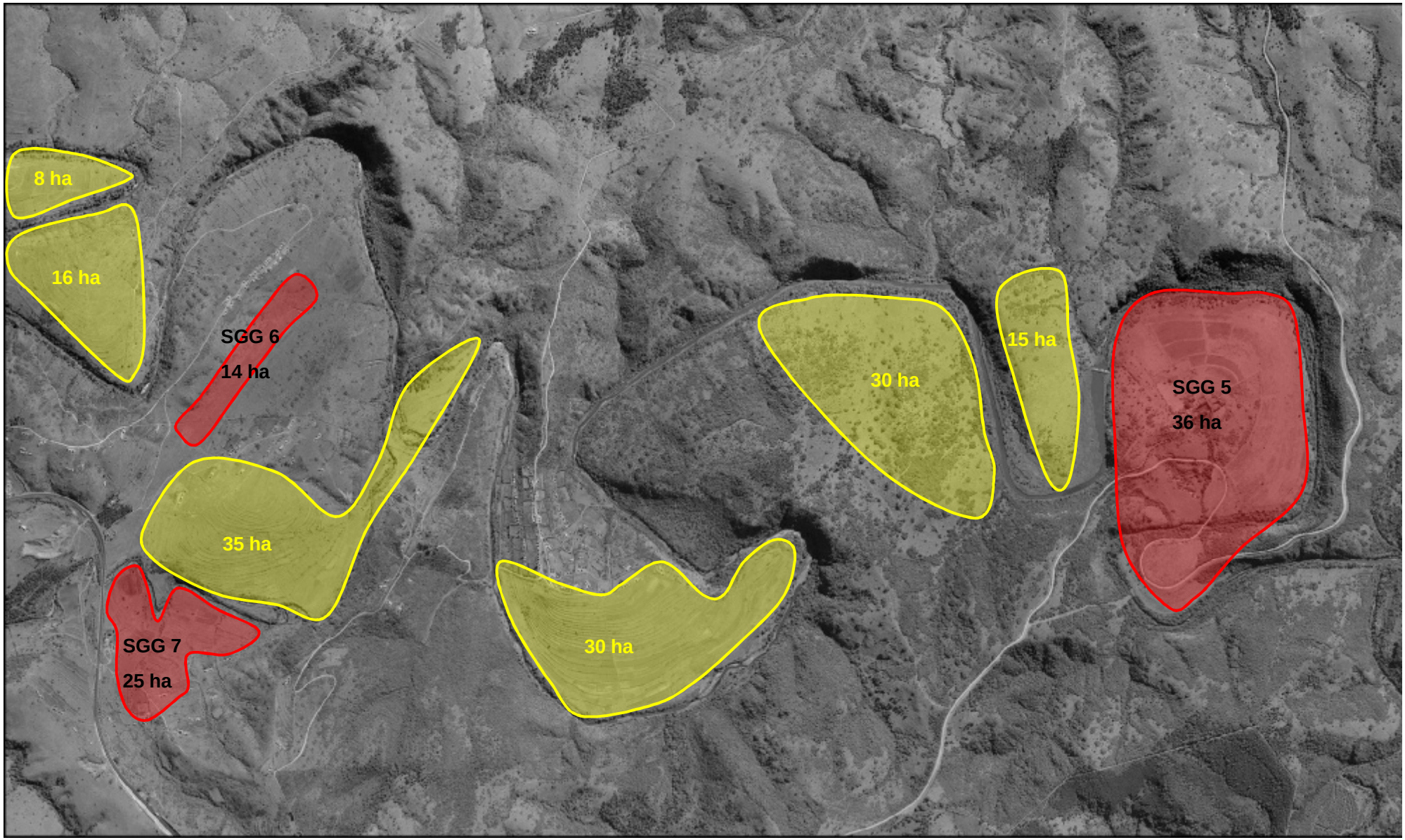


NOBAMBA FARMERS GROUP
EZINQOLENI MUNICIPALITY

The Nobamba Project is located in the KwaMthimude Traditional Authority within the Ezinqoleni Municipality. The project area is located alongside the N2 roadway below a very steep catchment area containing the head of a non perineal stream that flows through the centre of the project area. This project area of 21.5 ha is also very close to the Masikhuthazane Project and has much potential to expand. There are only 12 subscribed members that are presently cultivating the project area but this number is expected to at least double to 24 during the course of implementation.

The proposed irrigation system is to establish keyline berms that extend the catchment area above the project area in order to create larger rainwater flows towards the stream. This will allow additional rainwater to be channeled to the stream and diverted to small dams further downstream from where gravity fed mains and draglines can irrigate the project area.





Ezinqoleni General Project Area

Whilst investigating the three SGGs within the Ezinqoleni Municipality, it became obvious that there were many additional tracts of land near to these SGGs that have potential to be developed as future phases of this initial Development Plan. More specifically, approximately 134 ha of suitable land was identified that can realise good long term economies of scale by clustering agricultural development in this area.

Red area = Specific SGG Projects
Yellow area = Future potential project areas

SGG 5 = Horseshoe
SGG 6 = Masikhuthazane
SGG 7 = Nobamba

SITE INFRASTRUCTURE BUDGET OPTIONS

Infrastructure cost estimates

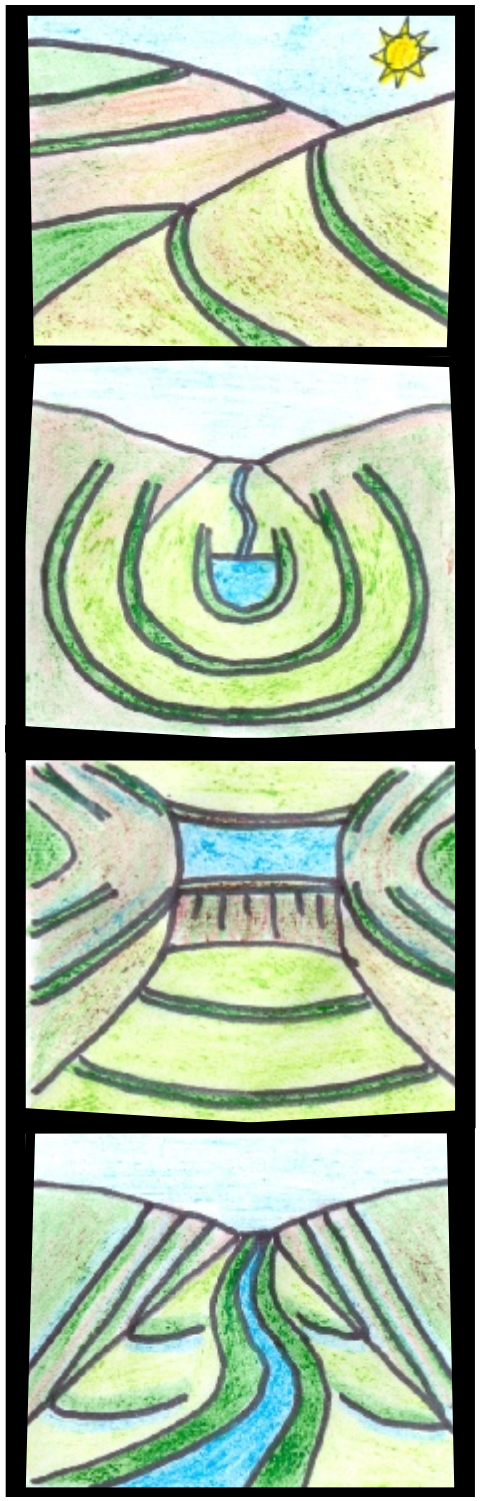
No.	Description	Unit	Rate	SGG 1 Mtengwane Project Hibiscus Coast Municipality			SGG 2 Boboyi Hibiscus Coast Municipality			SGG 3 Zamakuhle Hibiscus Coast Municipality			SGG 4 Entabeni Hibiscus Coast Municipality			SGG 5 Horseshoe Ezinqoleni Municipality			SGG 6 Masikhuthazane (Blose) Ezinqoleni Municipality			SGG 7 Nobamba Ezinqoleni Municipality			Total Cost
				Qty	Amount	Option	Qty	Amount	Option	Qty	Amount	Option	Qty	Amount	Option	Qty	Amount	Option	Qty	Amount	Option	Qty	Amount	Option	
1a	Excavate swale (< 0.5m high)	m	R 20	3,250	R 65,000	YES	945	R 18,900	YES	1,460	R 29,200	YES	800	R 16,000	YES	4,480	R 89,600	YES	4,140	R 82,800	YES	2,995	R 59,900	YES	R 361,400
1b	Vetiver grass to ridge of swale	m	R 30	3,250	R 97,500	YES	945	R 28,350	YES	1,460	R 43,800	YES	800	R 24,000	YES	4,480	R 134,400	YES	4,140	R 124,200	YES	2,995	R 89,850	YES	R 542,100
2a	Excavate berm (0.5 - 1m high)	m	R 40	165	R 6,600	YES	0	R 0	NO	0	R 0	NO	0	R 0	NO	2,005	R 80,200	YES	1,655	R 66,200	YES	560	R 22,400	YES	R 175,400
2b	Vetiver grass to ridge of berm	m	R 30	165	R 4,950	YES	0	R 0	NO	0	R 0	NO	0	R 0	NO	2,005	R 60,150	YES	1,655	R 49,650	YES	560	R 16,800	YES	R 131,550
3	Ridging of fields	ha	R 600	43	R 25,560	YES	6	R 3,360	YES	10	R 5,760	YES	5	R 3,120	YES	37	R 21,900	YES	14	R 8,400	YES	22	R 12,900	YES	R 81,000
4	Fencing	m	R 40	6,600	R 264,000	YES	1,000	R 40,000	YES	1,000	R 40,000	YES	1,770	R 70,800	YES	2,900	R 116,000	YES	1,800	R 72,000	YES	3,600	R 144,000	YES	R 746,800
5	Trees & shrubs wind break	km	R 26,000	1.6	R 41,600	YES	0.0	R 0	NO	0.5	R 13,000	YES	0.0	R 0	NO	0.0	R 0	NO	1.0	R 26,000	YES	0.0	R 0	NO	R 80,600
6	Small dam (3> H <5)	m3	R 30	23,231	R 696,930	YES	3,054	R 91,620	YES	0	R 0	NO	2,836	R 85,080	YES	0	R 0	NO	7,635	R 229,050	YES	11,725	R 351,750	YES	R 1,454,430
7	Subsoil drain	m	R 235	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	R 0
8	Construction of well	Sum	R 7,500	0	R 0	NO	0	R 0	NO	4	R 30,000	YES	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	R 30,000
9a	Supply hand operated pump	Sum	R 10,000	0	R 0	NO	0	R 0	NO	1	R 10,000	YES	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	R 10,000
9b	Concrete works to secure pump	Sum	R 6,500	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	R 0
10	Borehole	No	R 123,000	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	R 0
11a	Lay pumping mains	m	R 100	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	R 0
11b	Lay gravity mains	m	R 100	615	R 61,500	YES	355	R 35,500	YES	0	R 0	NO	500	R 50,000	YES	1,550	R 155,000	YES	875	R 87,500	YES	500	R 50,000	YES	R 439,500
12	Concrete channel laid to gradient	m	R 275	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	R 0
13	Supply 40mm diam. dragline	m	R 38	990	R 37,620	YES	550	R 20,900	YES	700	R 26,600	YES	400	R 15,200	YES	1,100	R 41,800	YES	990	R 37,620	YES	990	R 37,620	YES	R 217,360
14	Supply Zincalume water tank	Sum	R 85,000	0	R 0	NO	0	R 0	NO	0	R 0	NO	0	R 0	NO	1	R 85,000	YES	0	R 0	NO	0	R 0	NO	R 85,000
15a	Dragline drip irrigation system	ha	R 2,000	43	R 85,200	YES	6	R 11,200	YES	10	R 19,200	YES	5	R 10,400	YES	37	R 73,000	YES	14	R 28,000	YES	22	R 43,000	YES	R 270,000
15b	Drip Irrigation System	ha	R 15,000	43	R 0	NO	6	R 0	NO	10	R 0	NO	5	R 0	NO	37	R 0	NO	14	R 0	NO	22	R 0	NO	R 0
	Sub-Total				R 1,386,460			R 249,830			R 217,560			R 274,600			R 857,050			R 811,420			R 828,220		R 4,625,140
	Preliminary & General		20.0%		R 277,292			R 49,966			R 43,512			R 54,920			R 171,410			R 162,284			R 165,644		R 925,028
	Sub-total				R 1,663,752			R 299,796			R 261,072			R 329,520			R 1,028,460			R 973,704			R 993,864		R 5,550,168
	Contingency		5.0%		R 83,188			R 14,990			R 13,054			R 16,476			R 51,423			R 48,685			R 49,693		R 277,508
	TOTAL infrastructure for 3 crops pa				**R 1,746,940**			**R 314,786**			**R 274,126**			**R 345,996**			**R 1,079,883**			**R 1,022,389**			**R 1,043,557**		**R 5,827,676**
	Cost per Area (ha)			**42.6**	**R 41,008**		**5.6**	**R 56,212**		**9.6**	**R 28,555**		**5.2**	**R 66,538**		**36.5**	**R 29,586**		**14.0**	**R 73,028**		**21.5**	**R 48,538**		**R 43,168**
	Cost per Member (No.)			**67**	**R 26,074**		**40**	**R 7,870**		**47**	**R 5,832**		**15**	**R 23,066**		**68**	**R 15,881**		**25**	**R 40,896**		**24**	**R 43,482**		**R 20,376**
	TOTAL infrastructure for 2 crops pa				**R 636,565**			**R 114,169**			**R 166,018**			**R 143,539**			**R 632,835**			**R 540,855**			**R 435,771**		**R 2,669,751**
	Cost per Area (ha)			**42.6**	**R 14,943**		**5.6**	**R 20,387**		**9.6**	**R 17,294**		**5.2**	**R 27,604**		**36.5**	**R 17,338**		**14.0**	**R 38,633**		**21.5**	**R 20,268**		**R 19,776**
	Cost per Member (No.)			**67**	**R 9,501**		**40**	**R 2,854**		**47**	**R 3,532**		**15**	**R 9,569**		**68**	**R 9,306**		**25**	**R 21,634**		**24**	**R 18,157**		**R 9,335**

Comparison of farm land per project

No.	SGG	Project Area	Members	Average Area / member	Hibiscus Coast Municipality	Ezinqoleni Municipality	Classification
		ha	No.	ha / No.	ha / No.	ha / No.	
1	Mtengwane	42.6	67	0.64	0.64		Peri-urban
2	Bhoboyi	5.6	40	0.14	0.14		Peri-urban
3	Zamokuhle	9.6	47	0.20	0.20		Peri-urban
4	Entabeni	5.2	15	0.35	0.35		Peri-urban
5	Horseshoe	36.5	68	0.54		0.54	Rural
6	Masikhuthazane	14.0	25	0.56		0.56	Rural
7	Nobamba	21.5	24	0.90		0.90	Rural
	Totals	**135.0**	**286**	**0.47**	**0.37**	**0.62**	
					Peri-urban	**Rural**	

Summary - Infrastructure Budget

No.	SGG	Project Area	Members	2-Crops per annum			3-Crops per annum		
		ha	No.	Cost	Cost / ha	Cost / No.	Cost	Cost / ha	Cost / No.
1	Mtengwane	42.6	67	R 636,565	R 14,943	R 9,501	R 1,746,940	R 41,008	R 26,074
2	Bhoboyi	5.6	40	R 114,169	R 20,387	R 2,854	R 314,786	R 56,212	R 7,870
3	Zamokuhle	9.6	47	R 166,018	R 17,294	R 3,532	R 274,126	R 28,555	R 5,832
4	Entabeni	5.2	15	R 143,539	R 27,604	R 9,569	R 345,996	R 66,538	R 23,066
5	Horseshoe	36.5	68	R 632,835	R 17,338	R 9,306	R 1,079,883	R 29,586	R 15,881
6	Masikhuthazane	14.0	25	R 540,855	R 38,633	R 21,634	R 1,022,389	R 73,028	R 40,896
7	Nobamba	21.5	24	R 435,771	R 20,268	R 18,157	R 1,043,557	R 48,538	R 43,482
	Totals	**135.0**	**286**	**R 2,669,751**	**R 19,776**	**R 9,335**	**R 5,827,676**	**R 43,168**	**R 20,376**
					Averages			**Averages**	



9. ORGANISATION AND LOGISTICS

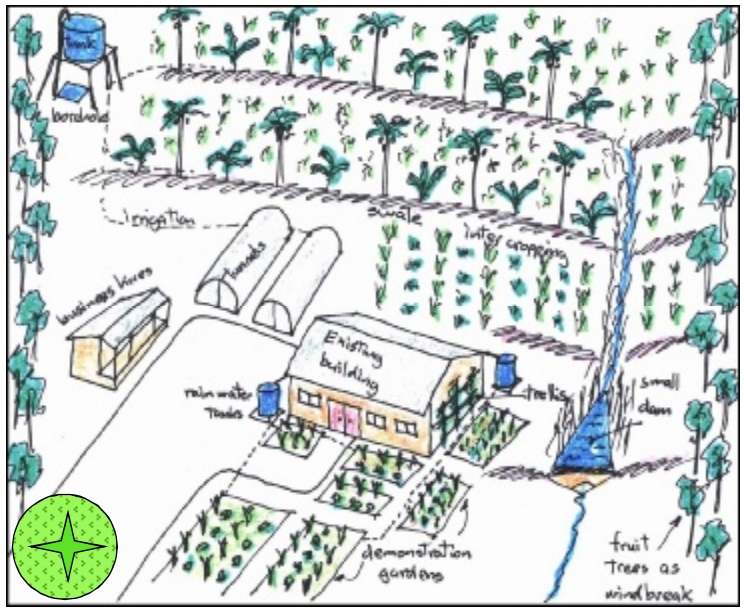
Critical Success Factor	To establish Primary Co-operatives and their linkages to markets.
Action Plans	• Formulate functions of Primary Co-operatives • Propose localities for Primary Co-operatives • Estimate crop volumes • Identify logistics between Primary Co-operatives and the Ugu Agricultural Market
KPIs / Deliverables	Production of +/- 4,000 tons or crops per annum from 7 Primary Co-operatives (3 with packsheds, administrative systems and farm equipment).

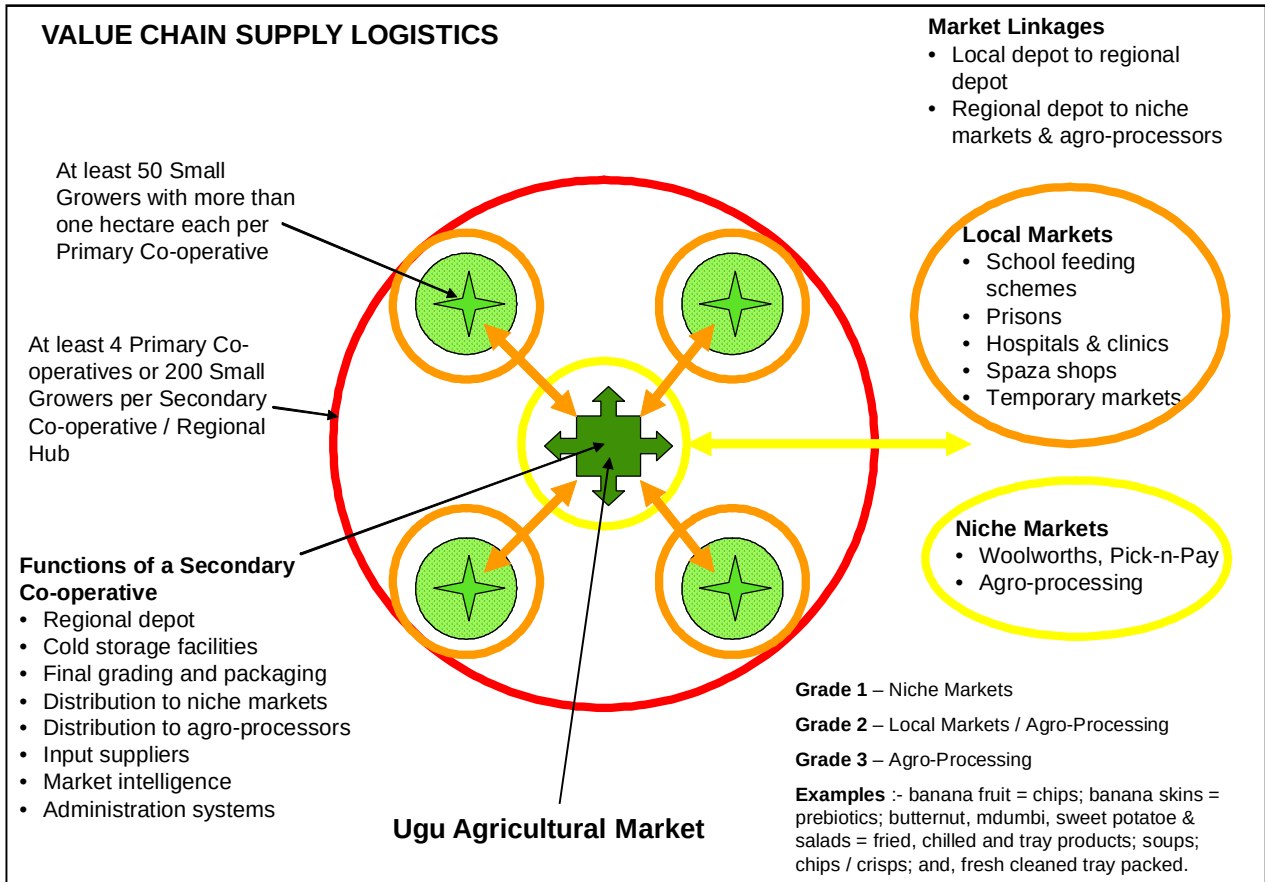
PRIMARY CO-OPERATIVES / FARMERS SUPPORT CENTRE

A sound supply value chain logistical system ensures that surplus produce finds the right market at the right time. Generally, all this takes is a well organised farmers group. To this end, the farmers group would do well to organise itself into a Primary Co-operative with a physical presence as illustrated on the right. The Primary Co-operative can also act as a Farmers Support Centre which should be located within every Small Grower Group of at least 50 farmers with access to one or more hectares of land. This facility provides a "home base" for a farmers group which acts as a local supply depot where rough grading of produce takes place together with the associated administrative component that allocates produce / income and levies per farmer. The full functions of a Primary Co-operative are endless with the following list by no means exhaustive;-

- Local depot
- Rough grading and sorting
- Distribution to local markets
- Distribution to niche markets
- Seed exchange, propagation and storage
- Advisory services for farmers
- Hiring of plant and equipment
- Facilitate the application of micro loans
- Provide assistance to emerging small micro enterprises
- Training of farmers

In turn, several flourishing Primary Co-operatives within a sub-regional area may well create demand for an agricultural market \ hub with packshed and agro-processing facilities that can add value to surplus produce and simultaneously provide logistical support for distribution of produce to retailers and wholesalers as depicted in the diagram on the right. This type of hub is now being provided by the new Ugu Agricultural Market.





CROP PRODUCTION ESTIMATES

Crop Production per Project area

No.	SGG	Total Area	Blocks	Harvest ha per month
		ha	No.	ha
1	Mtengwane	42.6	4	10.7
2	Bhoboyi	5.6	4	1.4
3	Zamokuhle	9.6	4	2.4
4	Entabeni	5.2	4	1.3
5	Horseshoe	36.5	4	9.1
6	Masikhuthazane	14.0	4	3.5
7	Nobamba	21.5	4	5.4
	Total	**135.0**		**33.8**

Estimate 1

No.	Crops	Tons / ha	Crop %	Tons per annum	Tons per month
1	Madumbe	10	25.0%	1,013	84
2	Sweet potato	12		0	0
3	Potatoe	15		0	0
4	Carrots	10		0	0
5	Butternut	12	25.0%	1,215	101
6	Pumpkins	20		0	0
7	Beetroot	12		0	0
8	Beans	5	25.0%	506	42
9	Spinach	2	25.0%	203	17
10	Maize	10		0	0
	Total		**100.0%**	**2,936**	**245**

Estimate 2

No.	Crops	Tons / ha	Crop %	Tons per annum	Tons per month
1	Madumbe	10	25.0%	1,013	84
2	Sweet potato	12		0	0
3	Potatoe	15	25.0%	1,519	127
4	Carrots	10		0	0
5	Butternut	12		0	0
6	Pumpkins	20		0	0
7	Beetroot	12		0	0
8	Beans	5	25.0%	506	42
9	Spinach	2	25.0%	203	17
10	Maize	10		0	0
	Total		**100.0%**	**3,240**	**270**

Estimate 3

No.	Crops	Tons / ha	Crop %	Tons per annum	Tons per month
1	Madumbe	10	25.0%	1,013	84
2	Sweet potato	12	25.0%	1,215	101
3	Potatoe	15		0	0
4	Carrots	10		0	0
5	Butternut	12		0	0
6	Pumpkins	20	25.0%	2,025	169
7	Beetroot	12		0	0
8	Beans	5		0	0
9	Spinach	2		0	0
10	Maize	10	25.0%	1,013	84
	Total		**100.0%**	**5,265**	**439**

CROP PRODUCTION SCENARIOS

Crop Production Summary

No.	Crops per annum	Range	Tons per annum	Tons per month
1	3-Crops	Minimum	2,936	245
2	3-Crops	Maximum	5,265	439
3	2-Crops	Minimum	1,958	163
4	2-Crops	Maximum	3,510	293
5	1-Crop	Minimum	979	82
6	1-Crop	Maximum	1,755	146

Crop Production - KwaNdwalane Cluster

No.	Crops per Season	Range	Tons per annum	Tons per month
1	3-Crops	Minimum	1,048	87
2	3-Crops	Maximum	1,880	157
3	2-Crops	Minimum	699	58
4	2-Crops	Maximum	1,253	104
5	1-Crop	Minimum	349	29
6	1-Crop	Maximum	627	52

Crop Production - KwaNzimakwe Cluster

No.	Crops per Season	Range	Tons per annum	Tons per month
1	3-Crops	Minimum	322	27
2	3-Crops	Maximum	577	48
3	2-Crops	Minimum	215	18
4	2-Crops	Maximum	385	32
5	1-Crop	Minimum	107	9
6	1-Crop	Maximum	192	16

Crop Production - Ezinqoleni Cluster

No.	Crops per Season	Range	Tons per annum	Tons per month
1	3-Crops	Minimum	1,566	131
2	3-Crops	Maximum	2,808	234
3	2-Crops	Minimum	1,044	87
4	2-Crops	Maximum	1,872	156
5	1-Crop	Minimum	522	44
6	1-Crop	Maximum	936	78

Production scenario for 3-Crops per annum

Project Cluster	Years 1 & 2 Tons pa	Year 3 onwards Tons pa
KwaNdwalane	542	1,464
KwaNzimakwe	300	450
Ezinqoleni	1,458	2,187
Total	**2,300**	**4,101**

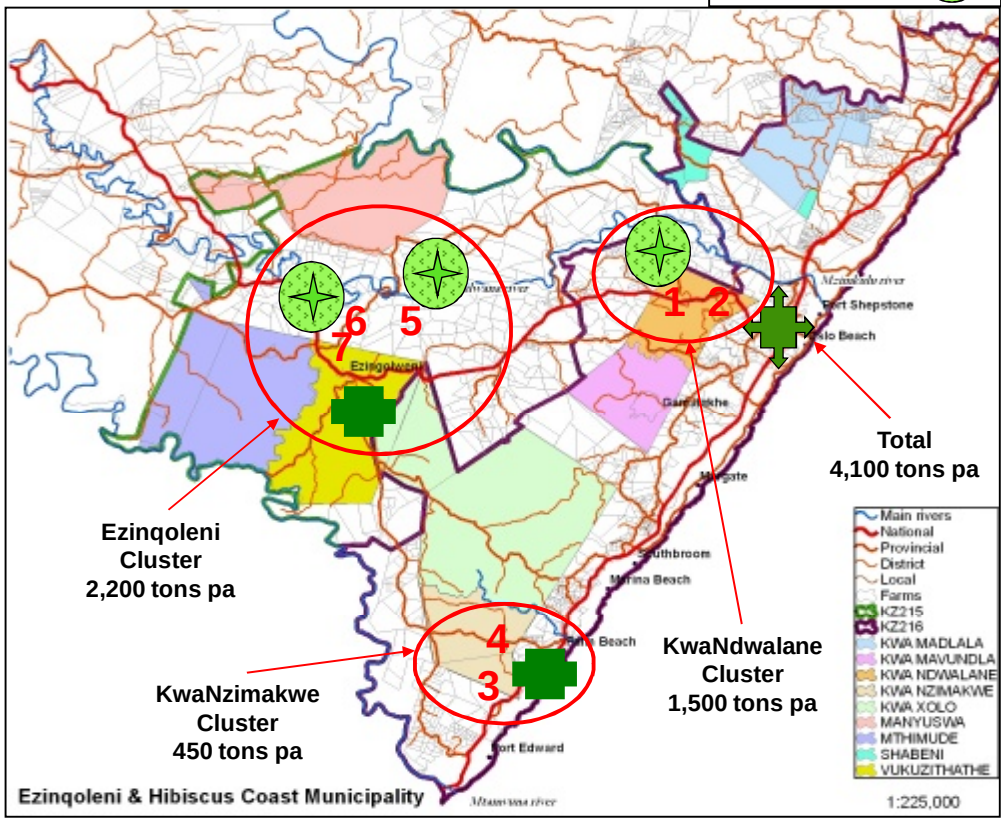
The principles of the Value Chain Supply Logistics described earlier are now applied to the project region. Firstly, the crop production estimates on the left reflect a typical portfolio of crops that are most likely to be grown for the organics market. These seven SGGs have the potential to supply some 4,000 tons per annum, or, about 10% of the break even 40,000 ton volume required by the Ugu Agricultural Market. Secondly, these estimates suggest the extent of organisation and supply logistics required. To this end, it is proposed at every SGG be established as a Primary Co-Operative, but, that a physical co-operative only be established for the larger SGGs, namely, Mtengwane, Horseshoe, whilst the adjacent Masikhuthazane and Nobamba can share one. These proposals can be revisited in time for the smaller SGGs if the need arises.

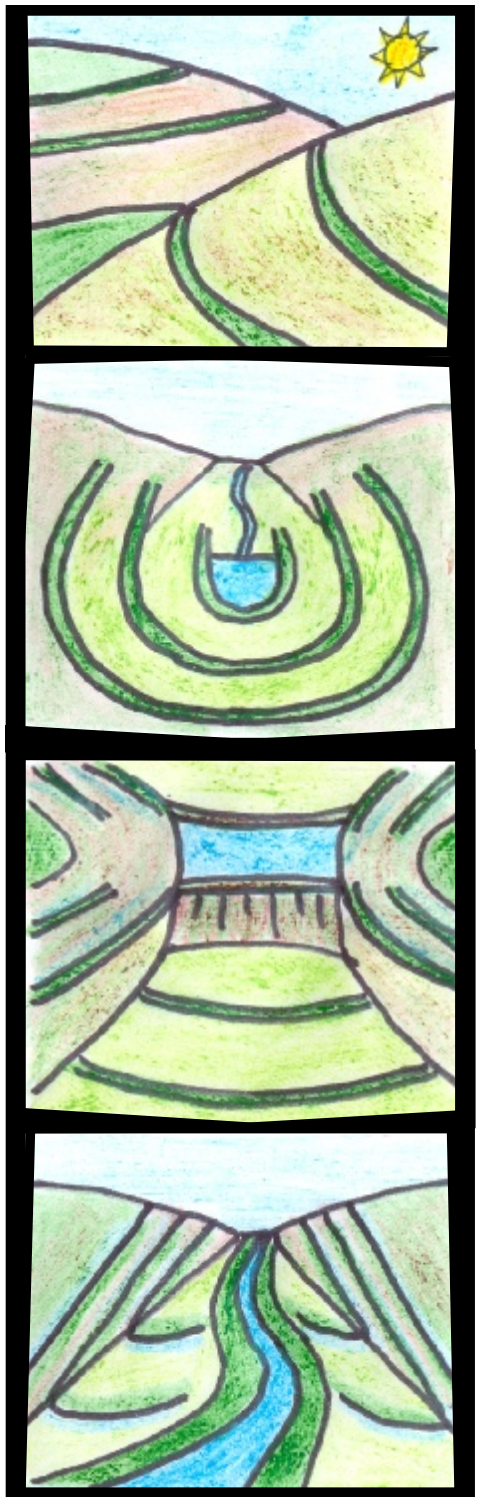
In addition, it is proposed that the new Local Depots related to the Ugu Agricultural Market be established at Ezinqoleni and KwaNzimakwe. Whilst these Local Depots are similar to the Primary Co-Operatives, they are more focused on transport logistics to the Ugu Agricultural Market, and, will not duplicate the function of the proposed Primary Co-Operatives. .

Ugu Agricultural Market

Proposed Depots

Proposed Co-operatives at each SGG
SGG 1 - Mtengwane
SGG 2 - Bhobhoyi
SGG 3 - Zamokuhle
SGG 4 - Entabeni
SGG 5 – Horseshoe
SGG 6 – Masikhuthazane
SGG 7 – Nobamba
Denotes a physical Co-operative





10. ORGANIC & FAIR TRADE CERTIFICATION

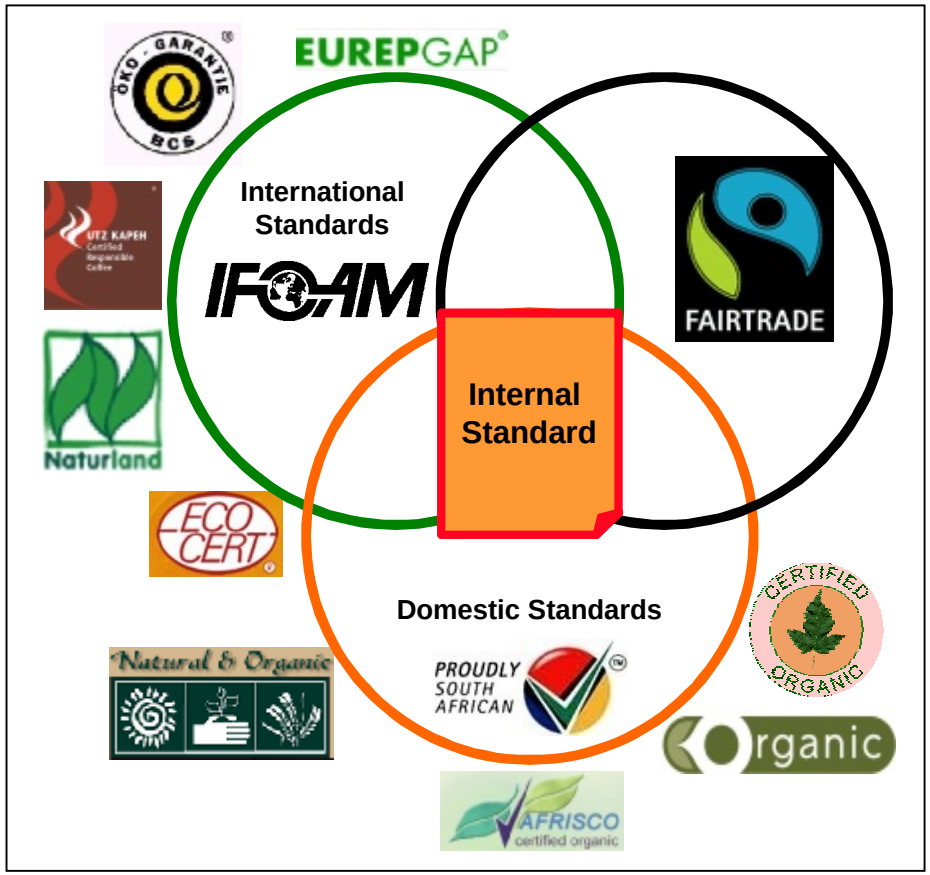
Critical Success Factor	Fundamental requirement for access to niche organic markets.
Action Plans	• Dovetail Organic and Fair Trade Certification • Effective training to establish Internal Quality Management Systems • Organically certified value chain supply system
KPIs / Deliverables	7 Primary Co-operatives with 135 ha Certified Organic and Fair Trade.

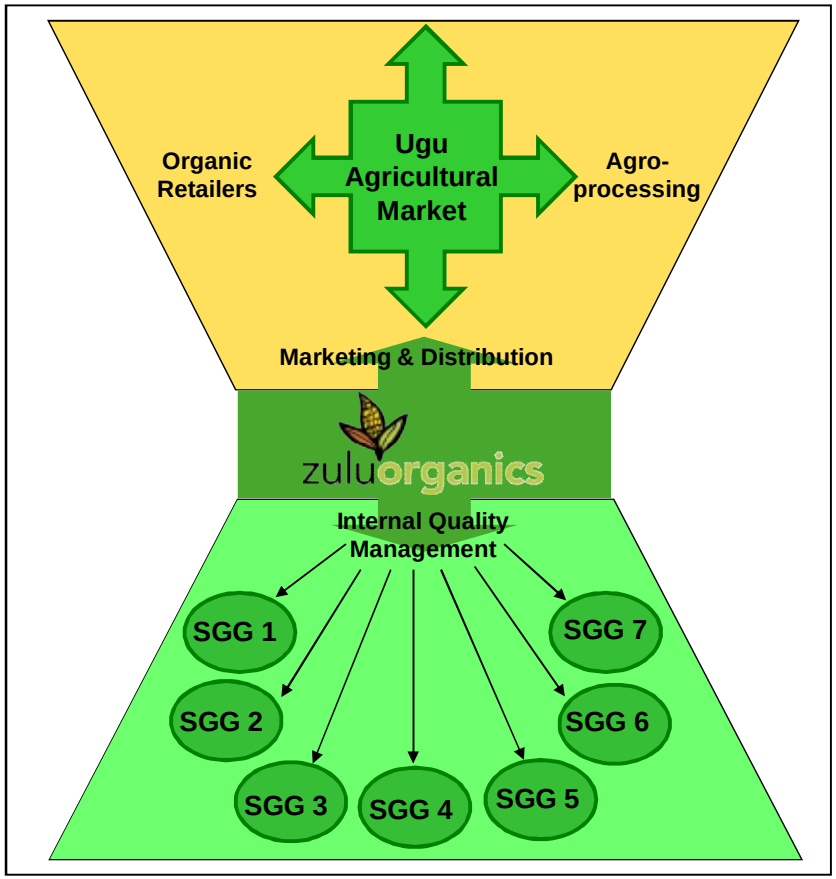
ORGANIC CERTIFICATION

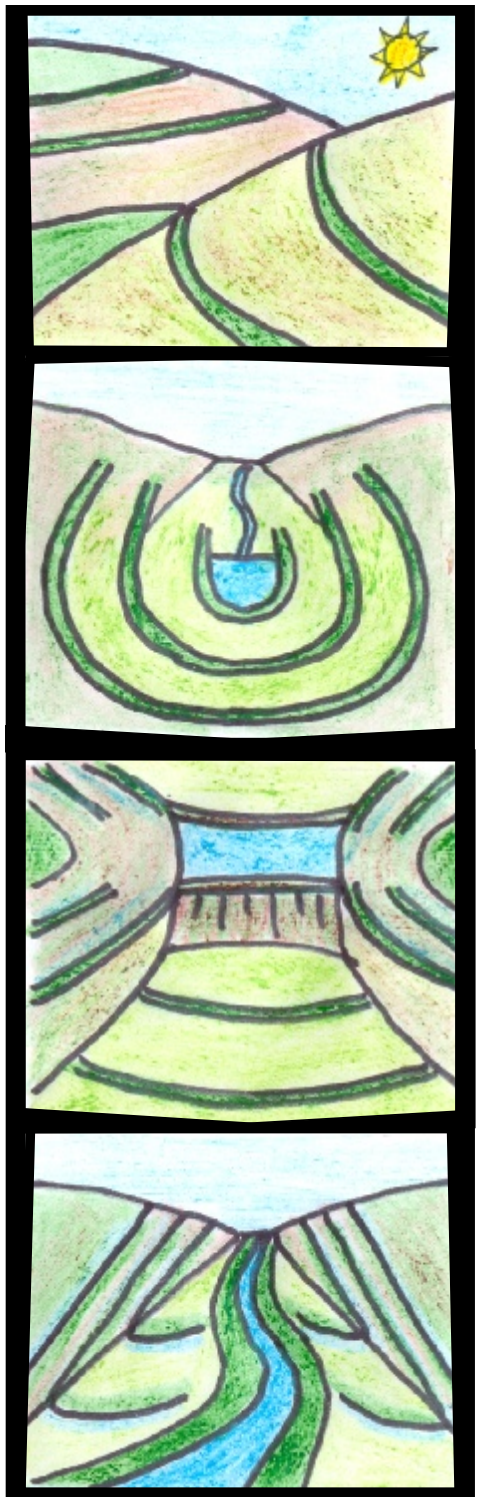
The illustration below attempts to show how complex it can be to comply with all the relevant organic certification standards, especially since no organic standards have yet been developed in South Africa. For this reason, South African retailers and exporters use international standards, and/or, make up their own requirements. Whilst IFOAM sets the international standard guidelines for good organic farming practices, each country uses these guidelines to establish their own specific standards and quality systems. Independent organic certifiers are then engaged to certify agricultural entities. In any event, there is much overlap amongst various quality systems, and it makes sense to develop ONE "internal standard" which simplifies matters by combining different quality systems which are acceptable both locally and internationally. Moreover, it also makes good business sense to combine the criteria from Fair Trade, especially since one is developing and empowering small scale farmers in marginalised rural areas by creating linkages directly to the markets, thereby omitting unnecessary handling fees by middlemen.

In order to make the cost of organic certification more affordable for small scale farmers, a Group Certification Scheme for the SGG is the logical choice. However, this requires an Internal Quality Management System whose function is;- to manage risk; continually develop and enhance the Internal Standard; internal inspection of all members' farms; approvals and sanctions; ongoing training; maintaining a data base of farmers and their production; and, maintaining quality management documentation. All this is necessary in order to enhance the quality and performance of a SGG. Failure to maintain the Internal Quality Management System will jeopardize the organic status of a SGG.

Given the nature of the seven SGGs contained within this Development Plan, and other similar entities, to become contract growers for niche organic products, it is envisaged that Zulu Organics will maintain the Internal Quality Management System and the supply value chain to the Ugu Agricultural Market as shown in the figure below. In other words, Zulu Organics lends itself to becoming a certified organic entity and thereby becomes responsible for the organic status of its contract growers, especially since it will have secured specific organic niche markets and ensured that the supply value chain itself is also certified organic, that is, the organic packshed and organic agro-processing operation.







11. TRAINING & MENTORING

Critical Success Factor	To provide accredited training and dedicated mentoring.
Action Plans	• Prepare programme for training & mentoring • Training in Organic Principles (100%) • Training in Organic Farming 1 (100%) • Training in Agri-Business 1 (25%) • Facilitator Training (10%)
KPIs / Deliverables	Comprehensive training programme comprising 8,150 person days of accredited training for 286 beneficiaries.

TRAINING REQUIREMENTS

The thorough training of small scale farmers in sustainable agriculture is most probably thee most important development component. Even if no other component, such as, infrastructure, marketing, logistics, distribution, etc., is provided, small scale farmers may still survive financially from just their newfound training skills since these empower farmers to maintain their livelihoods by using low external input sustainable agricultural practices. Herein, it is important to deliver accredited training by a recognized and reputable training entity. However, one does need to exercise caution insofar as doing the right amount of training that is deemed necessary for this initial development phase. It is likely that additional, and/or, advanced training can be delivered as the membership of the SGG grows and as more land is cultivated. The training itinerary proposed is that at least every member of a SGG should receive training in Organic Principles and Organic Farming as contained in the tables on the right. Thereafter, the trainees can be evaluated and 25% selected for further training in Agri-Business 1 as contained in the table on the next page. All this training is designed to accumulate points towards a National Qualification up to Level 5. After undertaking these three, two week long training courses, 10% of the best trainees can be selected for Facilitator Training in order to become the "project team leaders" or future land stewards. The content of the Facilitator Training is contained in the table on the next page and is in fact a full learnership (NQF Level 5).

The table below has been formulated to estimate the training costs for a typical SGG based on an average size of 40 members for the seven SGGs contained within this Development Plan. A training group of 40 is of sufficient size to afford economies of scale within a SGG for delivering a training course. However, the ideal situation is to train all seven SGGs within a schedule that suits the training service provider and SGGs, especially since the Agri-Business and Facilitator Training courses will most likely be undertaken within project area clusters. The cost estimates below are used in a later section to determined the development costs per SGG and for the development as a whole.

Training requirements for a typical SGG of 40 members

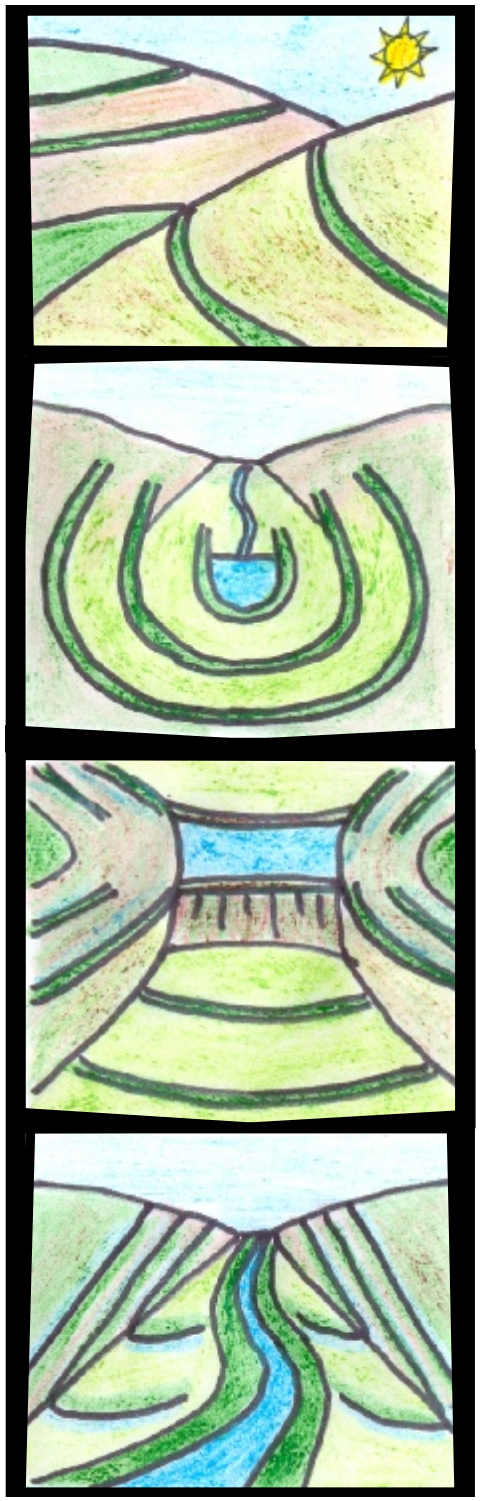
Course Name	Duration	NQF level	Attendance	Trainees	Unit Rate	Amount
Organic Principles	2 week course	2	100%	40	R2,000	R80,000
Organic Farming 1	2 week course	2	100%	40	R2,000	R80,000
Agri -business 1	2 week course	2	25%	10	R2,000	R20,000
Facilitator Training	6x 2 week modules	5	10%	4	R16,000	R72,000
Disbursements			Training days	1,140	R60	R68,400
Totals						R320,400
Average cost				40		R8,010

Rainman Landcare Foundation			
Skills Course 1: ORGANIC PRINCIPLES NQF level 2			
Unit Standard	**Description**	**Credits**	**ID**
116064	Recognize and identify the basic functions of the ecological environment	4	Fundamental
116127	Apply lay out principles for conservation and infrastructure.	5	Core
116057	Understand the structure and functions of a plant	5	Core
116077	Monitor water quality	3	Core
		17	

Rainman Landcare Foundation			
Skills Course 2: ORGANIC FARMING 1 NQF level 2			
Unit Standard	**Description**	**Credits**	**ID**
116053	Understand basic soil fertility and plant nutrition	5	Core
116079	Monitor the establishment of a crop	4	Core
116119	Demonstrate an understanding of plant propagation	3	Elective
116124	Control pests and diseases and weeds on crops effectively and responsibly.	4	Core
		16	

Rainman Landcare Foundation			
Skills Course 3: Agri-Business 1 NQF level 2			
Unit Standard	**Description**	**Credits**	**ID**
116081	Identify and recognise factors influencing agricultural enterprise selection	2	Core
116111	Harvest agricultural crops: Procedures	4	Elective
116126	Apply marketing principles in agriculture	2	Core
116083	Illustrate and understand the basic layout of financial statements	2	Core
116113	Explain principles of human resources management and practices in agriculture	2	Fundamental
116122	Control inputs and stock in agribusiness	2	Core
116115	Define and understand production systems and production management	2	Core
		16	

Rainman Landcare Foundation				
FACILITATOR TRAINING NQF level 5 **UNIT STANDARDS:** SAQA 49626 National Certificate: Landcare Facilitation (Organic) (Fundamental – 26; Core – 79; Elective – Choose at least 20 credits)				
	ID	**UNIT STANDARD TITLE**	**LEVEL**	**CREDITS**
Section 1	**2 weeks**	**Action Planning**		
Fundamental	8388	Apply basic conservation management planning	Level 5	4
Fundamental	8647	Apply workplace communication skills	Level 5	10
Fundamental	15216	Create opportunities for innovation and lead projects to meet innovative ideas	Level 5	4
Fundamental	14214	Evaluate and improve the project team`s performance	Level 5	8
Section 2	**2 weeks**	**Community Development**		
Core	117871	Facilitate learning using a variety of given methodologies	Level 5	10
Core	14600	Analyse community and conservation issues	Level 5	12
Core	13647	Investigate options for improved environmental management and sustainable living	Level 5	16
	ID	**UNIT STANDARD TITLE**	**LEVEL**	**CREDITS**
Section 3	**2 weeks**	**Conservation Management**		
Core	14612	Supervise the implementation of a community development programme	Level 5	12
Core	8386	Implement integrated catchment management	Level 5	4
Core	8371	Control Soil Erosion	Level 5	5
Core	14590	Apply community development techniques	Level 5	12
Section 4	**2 weeks**	**Permaculture Design**		
Elective	116405	Develop, implement and manage a Permaculture Site Design	Level 5	10
Section 5	2 weeks	Project Management		
Core	14020	Monitor budgets related to community projects	Level 5	8
Elective	14609	Participate in management of conflict	Level 5	4
Section 6	**2 weeks**	**Quality Management & Certification**		
Elective	116306	Manage Organic Certification and Internal Control Systems	Level 4	6
				125



12. FUNDING COMMITMENT

Critical Success Factor	To secure 100% funding to ensure that the Development Plan is implemented in a holistic manner.
Action Plans	• Collate cost estimates • Determine project budget • Determine resource distribution • Determine potential funding sources
KPIs / Deliverables	Agri-SETA ..... R2,977,680 (20.3%) DAEA ..... R9,874,990 (67.4%) DED / Gijima ..... R1,802,340 (12.3%) Total R14,655,010 (100%)

TypicalScope of Works and Budget for 50 Small Growers and a Primary Co-operative

#	Task	Budget	Unit Rate	%Costs	Scope of Works
1	ID SGGs	R 20,000	R 400	0.5%	Identification of SGGs in conjunction with local and district municipalities, and, DAEA; consultation with SGG; a one day organics awareness day with SGG farmers; and, written commitment to organics development.
2	Business Planning	R 80,000	R 1,600	2.0%	Preparation of a busines plan entailing;- irrigation analysis, farm land use plans, marketing analysis, distribution logistics, cost estimates, budgets, programmes, funding resources, and, project packaging.
3	Training	R 400,000	R 8,000	10.0%	Comprehensive training for all members of the SGG in organic principles and organic farming; and thereafter, some 25% of members in agri-business; followed by 10% of members in facilitator training as the future project leaders.
4	Site Planning & Survey	R 120,000	R 2,400	3.0%	Detailed site planning and survey of site layout for infrastructure, such as, keyline berms, swales, small dams, fence lines, irrigation, reservoirs, wells, and, tree shelter belts.
5	Site infrastructure	R 2,158,399	R 43,168	53.9%	Establishment of site infrastructure, such as, keyline berms, swales, small dams, fence lines, irrigation, limited till ridge system, reservoirs, wells, planting vetiver grass, and, tree shelter belts.
6	Initial crop production	R 75,000	R 1,500	1.9%	Sourcing of organic or similar seeds, planting, composting, mulching, organic soil improvements, companion plants, etc.
7	Organic Certification	R 20,000	R 400	0.5%	Organic certification by either Zulu Organics or independent organic certifier.
8	Site supervision	R 120,000	R 2,400	3.0%	Dedicated site supervision during establishment of site infrastructure and initial crop production.
9	Initial Mentoring	R 120,000	R 2,400	3.0%	Dedicated mentoring and extension support for 12 months after completion of site infrastructure and initial crop production.
10	Plan & Design Primary Co-operative	R 100,000	R 2,000	2.5%	Site identification in consultation with project beneficiaries; detailed planning and design; construction planning; and, procurement of local contractors.
11	Establish Primary Co-operative	R 400,000	R 8,000	10.0%	Construction / refurbishment of 80m2 building facilities ; establishment of administrative systems ; and, landscaping and small demonstration gardens.
12	Marketing & Distribution	R 30,000	R 600	0.7%	Establishing marketing links with specialist organic retailers and agro-processors; and, organising distribution linkages with the Ugu Agricultural Market.
13	Project Management	R 273,255	R 5,465	6.8%	Complete management of all the above activities, including; co-ordination, liaison and communication with funders and stakeholders; financial management; monitoring and evaluation; and, preparation of regular monthly and exception reports.
14	Project Administration	R 91,085	R 1,822	2.3%	This entails the management and organisation of all stipend and income payments to beneficiaries; preparation of monthly accounts; all bank charges; and, annual audit fees.
15	Extension Services	DAEA	DAEA	0.0%	This task shows how DAEA ought to integrate itself into the development programme and take over any future extension services beyond the initial 12 month mentorship.
	Sub-Total	R 4,007,739	R 80,155	100.0%	
	VAT	R 561,083	R 11,222		
	Total	R 4,568,822	R 91,376		

BUDGET ESTIMATES

This section collates previous input towards cost estimates in order to derive the Development Budget for each SGG and for the whole development. The parameters for a holistic development process are expanded in the table on the left to outline the scope of works for each task for a typical SSG of 50 members who have access to one ha each. The budget prepared for this typical SGG is based on cost estimates prepared thus far. An underlying assumption is that a service provider will be contracted to develop at least four such SGG in order to achieve the economies of scale reflected in the budget guidelines. Ideally, the four SGGs ought to be in fairly close proximity to each other, as indicated in the initial funding proposal that secured the funding for this Development Plan.

The ensuing budget for this typical SGG is based on a combination of unit rates per member or per ha, depending on the unit. For instance, the training budget is determined from the unit rate per member, whilst the site infrastructure budget is determined from the rate per ha. A Primary Co-operative has also been allowed for this size SGG. Budgets for site supervision, mentorship and project management are based on expected costs over the duration of the project as reflected in the schedule below and then converted back to a cost per member.

This budget data is then used to extrapolate the budgets each SGG as contained in the next two pages. The budgets for two scenarios are shown, namely, for site infrastructure that accommodates 2-Crops and 3-Crops per annum, respectively. These two scenarios have been compiled in order to facilitate an investment analysis in the next section between a associated levels of funding / investment against projected income benefits. The difference between the two scenarios is the extent of site infrastructure as itemized with cost estimates from an earlier section discussing specific land use plans.

Typical Programme & Resource Distribution for 50 Small Growers and a Primary Co-operative

#	Task	Budget	Cost per Grower	% Costs	Year 1				Year 2			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	ID SGGs	R 20,000	R 400	0.5%								
2	Business Planning	R 80,000	R 1,600	2.0%								
3	Training	R 400,000	R 8,000	10.0%								
4	Site Planning & Survey	R 120,000	R 2,400	3.0%								
5	Site infrastructure	R 2,158,399	R 43,168	53.9%								
6	Initial crop production	R 75,000	R 1,500	1.9%								
7	Organic Certification	R 20,000	R 400	0.5%								
8	Site supervision	R 120,000	R 2,400	3.0%								
9	Initial Mentoring	R 120,000	R 2,400	3.0%								
10	Plan & Design Primary Co-op	R 100,000	R 2,000	2.5%								
11	Establish Primary Co-op	R 400,000	R 8,000	10.0%								
12	Marketing & Distribution	R 30,000	R 600	0.7%								
13	Project Management	R 273,255	R 5,465	6.8%								
14	Project Administration	R 91,085	R 1,822	2.3%								
15	Extension Services	DAEA	DAEA	0.0%								>
	Sub-Total	R 4,007,739	R 80,155	100.0%	R 138	R 363	R 1,408	R 1,313	R 371	R 281	R 76	R 66
	VAT	R 561,083	R 11,222		R 19	R 51	R 197	R 184	R 52	R 39	R 11	R 9
	Quarterly cash flow	R 4,568,822	R 91,376	(R000s)	R 157	R 414	R 1,605	R 1,497	R 423	R 320	R 87	R 75
	Cumulative quarterly cash flow			*(R000s)*	*R 157*	*R 571*	*R 2,175*	*R 3,672*	*R 4,095*	*R 4,415*	*R 4,502*	*R 4,577*

Development Budget - Infrastructure for 2 Crops per annum

	Group No.1			SGG 1	SGG 2	SGG 3	SGG 4	SGG 5	SGG 6	SGG 7	Total	%
	Group Name			Mtengwane	Bhoboyi	Zamokuhle	Entabeni	Horseshoe	Masikhuthazane	Nobamba		
	Area (ha)			42.6	5.6	9.6	5.2	36.5	14.0	21.5	135.0	
	Members (No.)			67	40	47	15	68	25	24	286	
#	Task	Unit Rate	Calculation									
1	ID SGGs	R 0	Gijima KZN	R 0	R 0	R 0	R 0	R 0	R 0	R 0	**R 0**	**0.0%**
2	Business Planning	R 0	Gijima KZN	R 0	R 0	R 0	R 0	R 0	R 0	R 0	**R 0**	**0.0%**
3	Training	R 8,000	per member	R 536,000	R 320,000	R 376,000	R 120,000	R 544,000	R 200,000	R 192,000	**R 2,288,000**	**26.0%**
4	Site Planning & Survey	R 2,400	of Item 5	R 95,485	R 17,125	R 24,903	R 21,531	R 94,925	R 81,128	R 65,366	**R 400,463**	**4.6%**
5	Site infrastructure		as per estimates	R 636,565	R 114,169	R 166,018	R 143,539	R 632,835	R 540,855	R 435,771	**R 2,669,751**	**30.4%**
6	Initial crop production	R 1,500	per hectare	R 63,900	R 8,400	R 14,400	R 7,800	R 54,750	R 21,000	R 32,250	**R 202,500**	**2.3%**
7	Organic Certification	R 12,000	per project	R 12,000	R 12,000	R 12,000	R 12,000	R 12,000	R 12,000	R 12,000	**R 84,000**	**1.0%**
8	Site supervision	R 2,400	per hectare	R 102,240	R 13,440	R 23,040	R 12,480	R 87,600	R 33,600	R 51,600	**R 324,000**	**3.7%**
9	Initial Mentoring	R 2,400	per hectare	R 102,240	R 13,440	R 23,040	R 12,480	R 87,600	R 33,600	R 51,600	**R 324,000**	**3.7%**
10	Plan & Design Primary Co-op	R 2,000	on need	R 100,000	R 0	R 0	R 0	R 100,000	R 50,000	R 50,000	**R 300,000**	**3.4%**
11	Establish Primary Co-op	R 8,000	on need	R 400,000	R 0	R 0	R 0	R 400,000	R 200,000	R 200,000	**R 1,200,000**	**13.6%**
12	Marketing & Distribution	R 600	per hectare	R 25,560	R 3,360	R 5,760	R 3,120	R 21,900	R 8,400	R 12,900	**R 81,000**	**0.9%**
13	Project Management	R 3,711	per hectare	R 158,076	R 20,780	R 35,623	R 19,296	R 135,440	R 51,950	R 79,780	**R 500,944**	**5.7%**
14	Project Administration	5%	of above costs	R 111,603	R 26,136	R 34,039	R 17,612	R 108,553	R 61,627	R 59,163	**R 418,733**	**4.8%**
15	Extension Services	DAEA	NA								**R 0**	**0.0%**
			Sub-Total	**R 2,343,668**	**R 548,849**	**R 714,822**	**R 369,858**	**R 2,279,603**	**R 1,294,160**	**R 1,242,430**	**R 8,793,390**	**100.0%**
			VAT	R 328,114	R 76,839	R 100,075	R 51,780	R 319,144	R 181,182	R 173,940	**R 1,231,075**	
			Total	**R 2,671,782**	**R 625,688**	**R 814,897**	**R 421,638**	**R 2,598,748**	**R 1,475,342**	**R 1,416,370**	**R 10,024,465**	
			Cost / ha	**R 62,718**	**R 111,730**	**R 84,885**	**R 81,084**	**R 71,199**	**R 105,382**	**R 65,878**	**R 74,255**	
			Cost / Member	**R 39,877**	**R 15,642**	**R 17,338**	**R 28,109**	**R 38,217**	**R 59,014**	**R 59,015**	**R 35,051**	

Programme & Resource Distribution - Infrastructure for 2 Crops per annum

#	Task	Budget	Year 1				Year 2			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	ID SGGs	R 0								
2	Business Planning	R 0								
3	Training	R 2,288,000								
4	Site Planning & Survey	R 400,463								
5	Site infrastructure	R 2,669,751								
6	Initial crop production	R 202,500								
7	Organic Certification	R 84,000								
8	Site supervision	R 324,000								
9	Initial Mentoring	R 324,000								
10	Plan & Design Primary Co-op	R 300,000								
11	Establish Primary Co-op	R 1,200,000								
12	Marketing & Distribution	R 81,000								
13	Project Management	R 500,944								
14	Project Administration	R 418,733								
15	Extension Services	R 0								>>>>>
	Sub-Total	**R 8,793,390**	R 66	R 1,687	R 2,839	R 1,989	R 1,073	R 809	R 179	R 151
	VAT	R 1,231,075	R 9	R 236	R 397	R 279	R 150	R 113	R 25	R 21
	Quarterly cash flow	**R 10,024,465**	**R 75**	**R 1,924**	**R 3,236**	**R 2,268**	**R 1,223**	**R 922**	**R 204**	**R 172**
	Cumulative quarterly cash flow		***R 75***	***R 1,999***	***R 5,235***	***R 7,503***	***R 8,726***	***R 9,648***	***R 9,853***	***R 10,024***

Development Budget and Programme & Resource Distribution for Site Infrastructure that can accommodate 2-Crops per annum

The cost comparisons amongst SGG makes for interesting analysis. For instance, the most expensive cost per ha is SGG 2 : Bhoboyi due to its relatively small size, however, it is also the least expensive cost per member. This implies that cost per ha interrogates the design efficiency of the land use plan and associated site infrastructure, whilst cost per member checks the sufficiency of members. Given this interpretation, the extreme SGGs worth commenting on are SGG 2, 6 and 7, which are discussed on the next page.

Development Budget - Infrastructure for 3 Crops per annum

	Group No.1			SGG 1	SGG 2	SGG 3	SGG 4	SGG 5	SGG 6	SGG 7	Total	%
	Group Name			Mtengwane	Bhoboyi	Zamokuhle	Entabeni	Horseshoe	Masikhuthazane	Nobamba		
	Area (ha)			42.6	5.6	9.6	5.2	36.5	14.0	21.5	135.0	
	Members (No.)			67	40	47	15	68	25	24	286	
#	Task	Unit Rate	Calculation									
1	ID SGGs	R 0	Gijima KZN	R 0	R 0	R 0	R 0	R 0	R 0	R 0	**R 0**	**0.0%**
2	Business Planning	R 0	Gijima KZN	R 0	R 0	R 0	R 0	R 0	R 0	R 0	**R 0**	**0.0%**
3	Training	R 8,000	per member	R 536,000	R 320,000	R 376,000	R 120,000	R 544,000	R 200,000	R 192,000	**R 2,288,000**	**17.8%**
4	Site Planning & Survey	15%	of Item 5	R 262,041	R 47,218	R 41,119	R 51,899	R 161,982	R 153,358	R 156,534	**R 874,151**	**6.8%**
5	Site infrastructure		as per estimates	R 1,746,940	R 314,786	R 274,126	R 345,996	R 1,079,883	R 1,022,389	R 1,043,557	**R 5,827,676**	**45.3%**
6	Initial crop production	R 1,500	per hectare	R 63,900	R 8,400	R 14,400	R 7,800	R 54,750	R 21,000	R 32,250	**R 202,500**	**1.6%**
7	Organic Certification	R 12,000	per project	R 12,000	R 12,000	R 12,000	R 12,000	R 12,000	R 12,000	R 12,000	**R 84,000**	**0.7%**
8	Site supervision	R 2,400	per hectare	R 102,240	R 13,440	R 23,040	R 12,480	R 87,600	R 33,600	R 51,600	**R 324,000**	**2.5%**
9	Initial Mentoring	R 2,400	per hectare	R 102,240	R 13,440	R 23,040	R 12,480	R 87,600	R 33,600	R 51,600	**R 324,000**	**2.5%**
10	Plan & Design Primary Co-op	R 2,000	on need	R 100,000	R 0	R 0	R 0	R 100,000	R 50,000	R 50,000	**R 300,000**	**2.3%**
11	Establish Primary Co-op	R 8,000	on need	R 400,000	R 0	R 0	R 0	R 400,000	R 200,000	R 200,000	**R 1,200,000**	**9.3%**
12	Marketing & Distribution	R 600	per hectare	R 25,560	R 3,360	R 5,760	R 3,120	R 21,900	R 8,400	R 12,900	**R 81,000**	**0.6%**
13	Project Management	R 5,465	per hectare	R 232,813	R 30,605	R 52,465	R 28,419	R 199,476	R 76,511	R 117,500	**R 737,788**	**5.7%**
14	Project Administration	5%	of above costs	R 179,187	R 38,162	R 41,097	R 29,710	R 137,460	R 90,543	R 95,997	**R 612,156**	**4.8%**
15	Extension Services	DAEA	NA								**R 0**	**0.0%**
			Sub-Total	**R 3,762,920**	**R 801,411**	**R 863,047**	**R 623,904**	**R 2,886,651**	**R 1,901,402**	**R 2,015,937**	**R 12,855,272**	**100.0%**
			VAT	R 526,809	R 112,197	R 120,827	R 87,347	R 404,131	R 266,196	R 282,231	**R 1,799,738**	
			Total	**R 4,289,729**	**R 913,608**	**R 983,873**	**R 711,250**	**R 3,290,782**	**R 2,167,598**	**R 2,298,169**	**R 14,655,010**	
			Cost / ha	**R 100,698**	**R 163,144**	**R 102,487**	**R 136,779**	**R 90,158**	**R 154,828**	**R 106,892**	**R 108,556**	
			Cost / Member	**R 64,026**	**R 22,840**	**R 20,933**	**R 47,417**	**R 48,394**	**R 86,704**	**R 95,757**	**R 51,241**	

Programme & Resource Distribution - Infrastructure for 3 Crops per annum

#	Task	Budget	Year 1				Year 2			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	ID SGGs	R 0								
2	Business Planning	R 0								
3	Training	R 2,288,000								
4	Site Planning & Survey	R 874,151								
5	Site infrastructure	R 5,827,676								
6	Initial crop production	R 202,500								
7	Organic Certification	R 84,000								
8	Site supervision	R 324,000								
9	Initial Mentoring	R 324,000								
10	Plan & Design Primary Co-op	R 300,000								
11	Establish Primary Co-op	R 1,200,000								
12	Marketing & Distribution	R 81,000								
13	Project Management	R 737,788								
14	Project Administration	R 612,156								
15	Extension Services	R 0								>>>>>
	Sub-Total	**R 12,855,272**	R 97	R 2,216	R 4,528	R 3,678	R 1,104	R 840	R 210	R 182
	VAT	R 1,799,738	R 14	R 310	R 634	R 515	R 155	R 118	R 29	R 25
	Quarterly cash flow	**R 14,655,010**	**R 110**	**R 2,526**	**R 5,162**	**R 4,193**	**R 1,259**	**R 958**	**R 240**	**R 207**
	Cumulative quarterly cash flow		***R 110***	***R 2,637***	***R 7,798***	***R 11,992***	***R 13,250***	***R 14,208***	***R 14,448***	***R 14,655***

Development Budget and Programme & Resource Distribution for Site Infrastructure that can accommodate 3-Crops per annum

SGG 2 does appear to have too many beneficiaries. However, this overflow can be absorbed somewhat if the rainwater catchment valley of 2,5 ha adjacent to the project area is also utilized. SGGs 6 and 7 have relatively higher cost per ha arising from the extent of their site infrastructure. However, the irrigation analysis for SGGs 6 and 7 suggests that their rainwater catchments are far beyond what is necessary to for either 2-Crops or 3-Crops per annum, thereby allowing the extent of site infrastructure to be curtailed accordingly, and/or, to cultivate the relatively steeper slopes around the periphery of these projects in order to lower the cost per ha. Alternatively, given the potential abundance of rainwater catchment available for irrigation, SGGs 6 and 7 can be utilized for more intensive agriculture, such as, poly tunnels, and/or, orchard crops.

FUNDING REQUESTS

Infrastructure Scenario		2 Crops per annum		3 Crops per annum		Potential Funder
#	Task	Total	%	Total	%	
1	ID SGGs	R 0	0.0%	R 0	0.0%	Gijima KZN
2	Business Planning	R 0	0.0%	R 0	0.0%	Gijima KZN
3	Training	R 2,288,000	26.0%	R 2,288,000	17.8%	AGRI-SETA
4	Site Planning & Survey	R 400,463	4.6%	R 874,151	6.8%	DAEA
5	Site infrastructure	R 2,669,751	30.4%	R 5,827,676	45.3%	DAEA
6	Initial crop production	R 202,500	2.3%	R 202,500	1.6%	DAEA
7	Organic Certification	R 84,000	1.0%	R 84,000	0.7%	DAEA
8	Site supervision	R 324,000	3.7%	R 324,000	2.5%	DAEA
9	Initial Mentoring	R 324,000	3.7%	R 324,000	2.5%	AGRI-SETA
10	Plan & Design Primary Co-op	R 300,000	3.4%	R 300,000	2.3%	DED \ Gijima KZN
11	Establish Primary Co-op	R 1,200,000	13.6%	R 1,200,000	9.3%	DED \ Gijima KZN
12	Marketing & Distribution	R 81,000	0.9%	R 81,000	0.6%	DED \ Gijima KZN
13	Project Management	R 500,944	5.7%	R 737,788	5.7%	DAEA
14	Project Administration	R 418,733	4.8%	R 612,156	4.8%	DAEA
15	Extension Services	R 0	0.0%	R 0	0.0%	DAEA
	Sub-Total	**R 8,793,390**	**100.0%**	**R 12,855,272**	**100.0%**	
	VAT	**R 1,231,075**		**R 1,799,738**		
	Total	**R 10,024,465**		**R 14,655,010**		

Infrastructure Scenario		2 Crops per annum		3 Crops per annum	
#	Funder	Total	%	Total	%
A	AGRI-SETA	R 2,977,680	29.7%	R 2,977,680	20.3%
B	DAEA	R 5,244,445	52.3%	R 9,874,990	67.4%
C	DED \ Gijima KZN	R 1,802,340	18.0%	R 1,802,340	12.3%
	Total	**R 10,024,465**	**100.0%**	**R 14,655,010**	**100.0%**

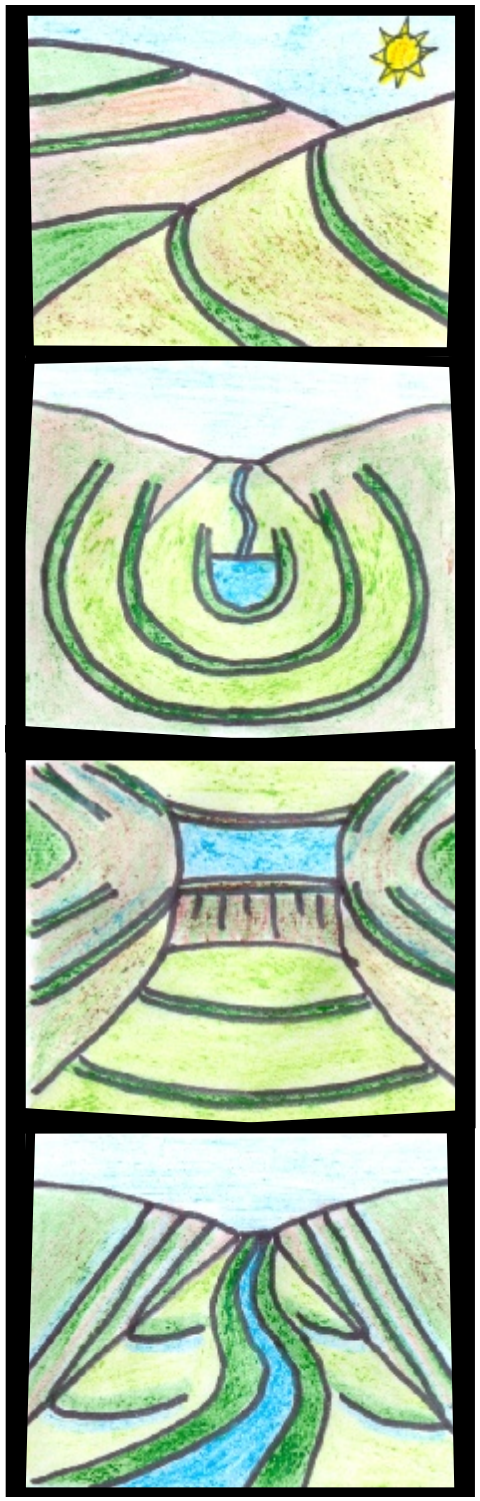
AGRI-SETA = Agricultural Sector Education Training Authority
DAEA = Department of Agriculture & Environmental Affairs
DED = Department of Economic Development

The schedule on the left collates the budget scenarios in order to compare the extent of funding required based for site infrastructure that can accommodate either 2-Crops or 3-Crops per annum. The potential funder for each task is also proposed and thereafter collated into the total funding required per proposed funding entity.

The training and mentoring funding requirement is quite obvious and has been directed towards Agri-SETA. The funding for site infrastructure and associated site planning, survey and site supervision; together with the initial crop production, organic certification, project management and project administration, is being targeted towards the Department of Agriculture & Environmental Affairs (DAEA). The balance of the funding for the establishment of the Primary Co-operative, including its planning and design, and, marketing and distribution, have been targeted for the Department of Economic Development / Gijima KZN.

An interesting observation from this budgeting exercise, is the average development cost of R109,000 per ha or R51,000 per member for the 3-Crop per annum scenario. The R9,9m funding requested from DAEA is approximately R73,000 per ha (including VAT) which is in accordance with existing practices. The R3,0m funding requested from Agri-SETA is already within the budget parameters of R2,000 per unit standard per trainee. The balance of the R1,8m funding requirement is for establishing each SGG as a Primary Co-operative, most of which will be for the physical establishment of three facilities at the largest SGGs.

Whilst there are many other funding entities that can be targeted, such as, the local and district municipality, the National Development Agency, National LOTTO, Department of Environmental Affairs & Tourism, etc., it should be noted that this Development Plan has been compiled to be implemented in a holistic manner. In other words, piecemeal funding commitments should not be used to start the overall development if the balance of the funding has not yet been committed otherwise the overall project will in all likelihood fail to deliver the expected outcomes. Similarly, in order to achieve economies of scale, all seven SGGs should be developed simultaneously and not one or two if a small amount of funding has been secured.



13. FINANCIAL VIABILITY

Critical Success Factor	To achieve good social rates of return from government funding programmes.
Action Plans	• Determine income from various crops • Estimate potential incomes • Investment analysis
KPIs / Deliverables	• Funding of R109,000 / ha or R51,300 / member • Income of R24,300 / ha pa or R11,500 / member pa

CROP YIELD ANALYSIS

The table below estimates the average income return per hectare for a range of crops given 100% grant financing for the initial establishment and development costs, as indicated in the funding needs of the previous section. The only finance charges relate to interest payments for production loans raised to cover the direct costs only. Column (7) calculates the average income yield per ha for the range of crops investigated. However, this average per ha needs to be adjusted for the two funding scenarios presented in the previous section, namely, site infrastructure for 2-Crops, Column (8), or, 3-Crops, Column (9), per annum. Furthermore, it is also assumed that with a good crop rotation system, one only needs to allow for a one year in every four years for the land to lie fallow. The fallow year will allow the soils time to recover by being planted with the likes of sun hemp or alfalfa in conjunction with heavy mulching.

Crop Yield Analysis - with CAPEX grant finance

	1		2		3		4		5		6		7	8	9
Crop	**Madumbe**		**Butternut**		**Potatoe**		**Beans**		**Beetroot**		**Carrots**		**Average Yield / ha**	**Average Yield for 2 Crops / ha / pa** 4 Year crops + 1 Year fallow	**Average Yield for 3 Crops / ha / pa** 4 Year crops + 1 Year fallow
	Rate / ha	**Totals**	**Rate / ha**	**Totals**	**Rate / ha**	**Totals**	**Rate / ha**	**Totals**	**Rate / ha**	**Totals**	**Rate / ha**	**Totals**			
Area (ha)		**1.0**		**1.0**		**1.0**		**1.0**		**1.0**		**1.0**			
Yeild / ha - Poor (tons)	5	5	5	5	10	10	3	3	5	5	5	5	Sum (1) to (6) / 6	(7) x 2 x 4 / 5 = 1.6	(7) x 3 x 4 / 5 = 2.4
Yeild / ha - Good (tons)	12	12	15	15	30	30	5	5	15	15	12	12			
Yeild / ha - Expected (tons)	**10**	**10**	**12**	**12**	**15**	**15**	**5**	**5**	**12**	**12**	**10**	**10**			
Price/kg		R 5.00		R 5.00		R 5.00		R 6.00		R 5.00		R 4.00	R 5.00		
Gross Income		**R 50,000**		**R 60,000**		**R 75,000**		**R 30,000**		**R 60,000**		**R 40,000**	**R 52,500**	**R 84,000**	**R 126,000**
Direct Costs	**Cost/ha**	**Total cost**	**Cost/ha**	**Total cost**	**Cost/ha**	**Total cost**	**Cost/ha**	**Total cost**	**Cost/ha**	**Total cost**	**Cost/ha**	**Total cost**			
Seed	R 7,000	R 7,000	R 800	R 800	R 10,000	R 10,000	R 800	R 800	R 800	R 800	R 2,500	R 2,500	R 3,650	R 5,840	R 8,760
Seedling Production	R 0	R 0	R 15,000	R 15,000	R 0	R 0	R 0	R 0	R 15,000	R 15,000	R 0	R 0	R 5,000	R 8,000	R 12,000
Soil Preparation	R 400	R 400	R 400	R 400	R 400	R 400	R 400	R 400	R 400	R 400	R 400	R 400	R 400	R 640	R 960
Organic Soil Improvements	R 25,000	R 25,000	R 25,000	R 25,000	R 40,000	R 40,000	R 15,000	R 15,000	R 25,000	R 25,000	R 20,000	R 20,000	R 25,000	R 40,000	R 60,000
Irrigation	R 500	R 500	R 500	R 500	R 500	R 500	R 300	R 300	R 300	R 300	R 300	R 300	R 400	R 640	R 960
Maintenance	R 200	R 200	R 200	R 200	R 200	R 200	R 200	R 200	R 200	R 200	R 200	R 200	R 200	R 320	R 480
Harvesting	R 400	R 400	R 400	R 400	R 800	R 800	R 400	R 400	R 400	R 400	R 400	R 400	R 467	R 747	R 1,120
On Farm Total Production Costs	**R 33,500**	**R 33,500**	**R 42,300**	**R 42,300**	**R 51,900**	**R 51,900**	**R 17,100**	**R 17,100**	**R 42,100**	**R 42,100**	**R 23,800**	**R 23,800**	**R 35,117**	**R 56,187**	**R 84,280**
Indirect Costs	**Cost/ha**	**Total cost**	**Cost / kg**	**Total cost**	**Cost / kg**	**Total cost**	**Cost / kg**	**Total cost**	**Cost / kg**	**Total cost**	**Cost / kg**	**Total cost**			
Admin fee for Primary Co-operative	R 2,500	R 2,500	R 3,000	R 3,000	R 3,750	R 3,750	R 1,500	R 1,500	R 3,000	R 3,000	R 2,000	R 2,000	R 2,625	R 4,200	R 6,300
Transport to Local Depot / Market	R 3,000	R 3,000	R 3,600	R 3,600	R 4,500	R 4,500	R 1,500	R 1,500	R 3,600	R 3,600	R 3,000	R 3,000	R 3,200	R 5,120	R 7,680
Total Indirect Costs	**R 5,500**	**R 5,500**	**R 6,600**	**R 6,600**	**R 8,250**	**R 8,250**	**R 3,000**	**R 3,000**	**R 6,600**	**R 6,600**	**R 5,000**	**R 5,000**	**R 5,825**	**R 9,320**	**R 13,980**
Production Finance Charges	**Cost / ha**	**Total cost**	**Cost / ha**	**Total cost**	**Cost / ha**	**Total cost**	**Cost / ha**	**Total cost**	**Cost / ha**	**Total cost**	**Cost / ha**	**Total cost**			
Interest on Production Loan @ 10% pa	R 1,357	R 1,357	R 1,714	R 1,714	R 2,103	R 2,103	R 693	R 693	R 1,706	R 1,706	R 964	R 964	R 1,423	R 2,276	R 3,414
Total Production Finance Charges	**R 1,357**	**R 1,357**	**R 1,714**	**R 1,714**	**R 2,103**	**R 2,103**	**R 693**	**R 693**	**R 1,706**	**R 1,706**	**R 964**	**R 964**	**R 1,423**	**R 2,276**	**R 3,414**
Total Costs		**R 40,357**		**R 50,614**		**R 62,253**		**R 20,793**		**R 50,406**		**R 29,764**	**R 42,364**	**R 67,783**	**R 101,674**
Net Income - Grant CAPEX		**R 9,643**		**R 9,386**		**R 12,747**		**R 9,207**		**R 9,594**		**R 10,236**	**R 10,136**	**R 16,217**	**R 24,326**

#	SGG 1	SGG 2	SGG 3	SGG 4	SGG 5	SGG 6	SGG 7	Totals	Averages
Project Area	Mtengwane	Boboyi	Zamakuhle	Entabeni	Horseshoe	Masikhuthazane	Nobamba		
Area (ha)	42.6	5.6	9.6	5.2	36.5	14.0	21.5	135.0	
Members	67	40	47	15	68	25	24	286	
Investment Analysis with Infrastructure for 2-Crops per annum									
Total Development Costs	R 2,671,782	R 625,688	R 814,897	R 421,638	R 2,598,748	R 1,475,342	R 1,416,370	R 10,024,465	
Total Development Costs per ha	R 62,718	R 111,730	R 84,885	R 81,084	R 71,199	R 105,382	R 65,878		R 74,255
Total Development Costs per Member	R 39,877	R 15,642	R 17,338	R 28,109	R 38,217	R 59,014	R 59,015		R 35,051
Income per ha with zero CAPEX loan	R 16,217	R 16,217	R 16,217	R 16,217	R 16,217	R 16,217	R 16,217		R 16,217
Scenario A1 - 100% Grant Finance									
Total Income with zero CAPEX loan	R 690,849	R 90,816	R 155,684	R 84,329	R 591,925	R 227,040	R 348,668	R 2,189,311	
Income per ha	R 16,217	R 16,217	R 16,217	R 16,217	R 16,217	R 16,217	R 16,217		R 16,217
Income per Member	R 10,311	R 2,270	R 3,312	R 5,622	R 8,705	R 9,082	R 14,528		R 7,655
Payback period	3.9	6.9	5.2	5.0	4.4	6.5	4.1		4.6
Return on Investment	25.9%	14.5%	19.1%	20.0%	22.8%	15.4%	24.6%		21.8%
Scenario B1 - DAEA 40/60 Grant / Loan plus 30/70 Gijima KZN Grant / Loan									
Total Income with zero CAPEX loan	R 690,849	R 90,816	R 155,684	R 84,329	R 591,925	R 227,040	R 348,668	R 2,189,311	
DAEA Loan	R 807,030	R 145,042	R 212,055	R 160,232	R 770,255	R 548,677	R 503,376	R 3,146,667	
Gijima Loan	R 179,742	R 1,149	R 1,970	R 1,067	R 178,490	R 88,373	R 89,912	R 540,702	
Total Loan	R 986,771	R 146,191	R 214,025	R 161,299	R 948,744	R 637,050	R 593,288	R 3,687,369	
Repayments @ 10% pa over 10 years	R 160,592	R 23,792	R 34,832	R 26,251	R 154,404	R 103,677	R 96,555	R 600,102	
Total Income	R 530,257	R 67,024	R 120,853	R 58,078	R 437,521	R 123,363	R 252,113	R 1,589,209	
Income per ha	R 12,447	R 11,969	R 12,589	R 11,169	R 11,987	R 8,812	R 11,726		R 11,772
Income per Member	R 7,914	R 1,676	R 2,571	R 3,872	R 6,434	R 4,935	R 10,505		R 5,557
Payback period	5.0	9.3	6.7	7.3	5.9	12.0	5.6		6.3
Return on Investment	19.8%	10.7%	14.8%	13.8%	16.8%	8.4%	17.8%		15.9%
Scenario C1 - 100% Loan Finance									
Total Income with zero CAPEX loan	R 690,849	R 90,816	R 155,684	R 84,329	R 591,925	R 227,040	R 348,668	R 2,189,311	
Total Loan	R 2,671,782	R 625,688	R 814,897	R 421,638	R 2,598,748	R 1,475,342	R 1,416,370	R 10,024,465	
Repayments @ 10% pa over 10 years	R 434,820	R 101,828	R 132,621	R 68,620	R 422,934	R 240,105	R 230,508	R 1,631,436	
Total Income	R 256,029	-R 11,012	R 23,064	R 15,709	R 168,991	-R 13,065	R 118,160	R 557,875	
Income per ha	R 6,010	-R 1,966	R 2,402	R 3,021	R 4,630	-R 933	R 5,496		R 4,132
Income per Member	R 3,821	-R 275	R 491	R 1,047	R 2,485	-R 523	R 4,923		R 1,951
Payback period	10.4	-56.8	35.3	26.8	15.4	-112.9	12.0		18.0
Return on Investment	9.6%	-1.8%	2.8%	3.7%	6.5%	-0.9%	8.3%		5.6%
Investment Analysis with Infrastructure for 3-Crops per annum									
Total Development Costs	R 4,289,729	R 913,608	R 983,873	R 711,250	R 3,290,782	R 2,167,598	R 2,298,169	R 14,655,010	
Total Development Costs per ha	R 100,698	R 163,144	R 102,487	R 136,779	R 90,158	R 154,828	R 106,892		R 108,556
Total Development Costs per Member	R 64,026	R 22,840	R 20,933	R 47,417	R 48,394	R 86,704	R 95,757		R 51,241
Income per ha with zero CAPEX loan	R 24,326	R 24,326	R 24,326	R 24,326	R 24,326	R 24,326	R 24,326		R 24,326
Scenario A2 - 100% Grant Finance									
Total Income with zero CAPEX loan	R 1,036,274	R 136,224	R 233,527	R 126,494	R 887,887	R 340,559	R 523,002	R 3,283,966	
Income per ha	R 24,326	R 24,326	R 24,326	R 24,326	R 24,326	R 24,326	R 24,326		R 24,326
Income per Member	R 15,467	R 3,406	R 4,969	R 8,433	R 13,057	R 13,622	R 21,792		R 11,482
Payback period	4.1	6.7	4.2	5.6	3.7	6.4	4.4		4.5
Return on Investment	24.2%	14.9%	23.7%	17.8%	27.0%	15.7%	22.8%		22.4%
Scenario B2 - DAEA 40/60 Grant / Loan plus 30/70 Gijima KZN Grant / Loan									
Total Income with zero CAPEX loan	R 1,036,274	R 136,224	R 233,527	R 126,494	R 887,887	R 340,559	R 523,002	R 3,283,966	
DAEA Loan	R 1,777,798	R 317,794	R 313,441	R 334,000	R 1,185,475	R 964,031	R 1,032,455	R 5,924,994	
Gijima Loan	R 179,742	R 1,149	R 1,970	R 1,067	R 178,490	R 88,373	R 89,912	R 540,702	
Total Loan	R 1,957,540	R 318,943	R 315,411	R 335,067	R 1,363,965	R 1,052,404	R 1,122,367	R 6,465,696	
Repayments @ 10% pa over 10 years	R 318,581	R 51,906	R 51,332	R 54,531	R 221,979	R 171,274	R 182,660	R 1,052,262	
Total Income	R 717,693	R 84,317	R 182,195	R 71,963	R 665,908	R 169,286	R 340,342	R 2,231,704	
Income per ha	R 16,847	R 15,057	R 18,979	R 13,839	R 18,244	R 12,092	R 15,830		R 16,531
Income per Member	R 10,712	R 2,108	R 3,876	R 4,798	R 9,793	R 6,771	R 14,181		R 7,803
Payback period	6.0	10.8	5.4	9.9	4.9	12.8	6.8		6.6
Return on Investment	16.7%	9.2%	18.5%	10.1%	20.2%	7.8%	14.8%		15.2%
Scenario C2 - 100% Loan Finance									
Total Income with zero CAPEX loan	R 1,036,274	R 136,224	R 233,527	R 126,494	R 887,887	R 340,559	R 523,002	R 3,283,966	
Total Loan	R 4,289,729	R 913,608	R 983,873	R 711,250	R 3,290,782	R 2,167,598	R 2,298,169	R 14,655,010	
Repayments @ 10% pa over 10 years	R 698,134	R 148,686	R 160,121	R 115,753	R 535,560	R 352,767	R 374,016	R 2,385,035	
Total Income	R 338,140	-R 12,462	R 73,406	R 10,741	R 352,328	-R 12,207	R 148,986	R 898,931	
Income per ha	R 7,938	-R 2,225	R 7,646	R 2,066	R 9,653	-R 872	R 6,930		R 6,659
Income per Member	R 5,047	-R 312	R 1,562	R 716	R 5,181	-R 488	R 6,208		R 3,143
Payback period	12.7	-73.3	13.4	66.2	9.3	-177.6	15.4		16.3
Return on Investment	7.9%	-1.4%	7.5%	1.5%	10.7%	-0.6%	6.5%		6.1%

INVESTMENT ANALYSIS

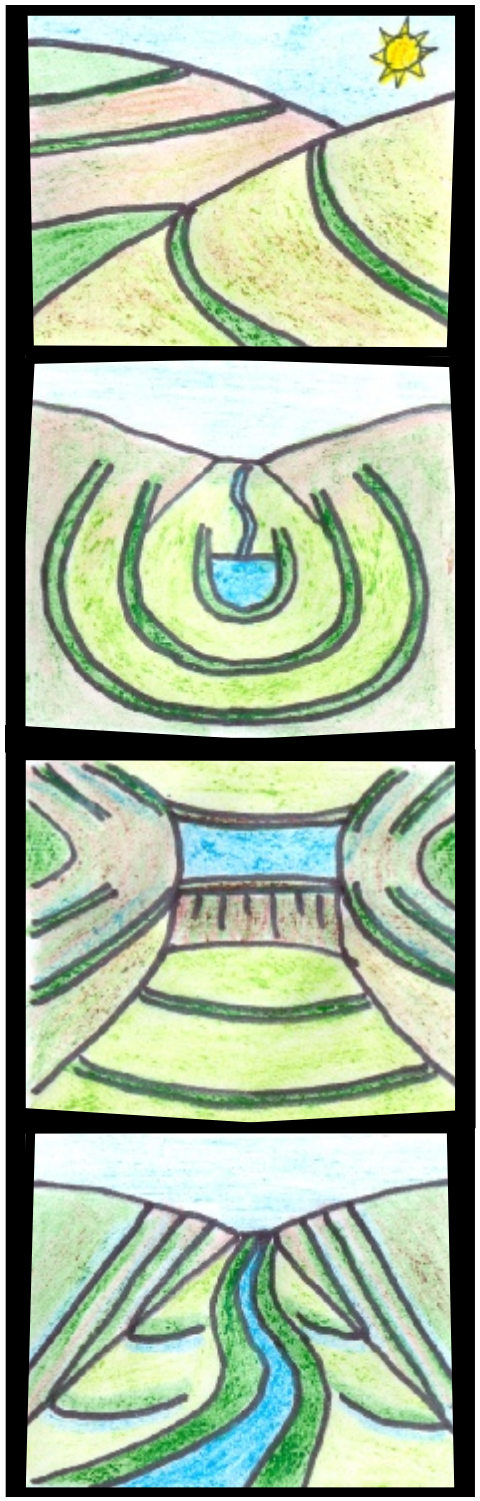
The table on the previous page calculated the expected income yields per hectare for the 2-Crop and 3-Crop option with 100% grant funding. These income yields are now used in the table on the left to calculate the income returns for each SGG under various financing scenarios, namely;-

- **Scenario A** returns the income yields with 100% grant funding.
- **Scenario B** returns the income yields by assuming a forthcoming DAEA policy of 40% grant and 60% loan finance plus the 30% loan and 70% grant finance from Gijima KZN.
- **Scenario C** returns the income yields with zero grant funding, that is, all the funding is borrowed.

The investment analysis summarised in the table below shows that the investment yardsticks for both scenarios, 2-Crops or 3-Crops per annum, yield very similar results. However, the income benefits for beneficiaries under 3-Crops per annum is consistantly about 50% higher, as can be expected with an extra crop per annum. The income yields for both scenarios reflect reasonable returns for beneficiaries who would also receive maintenance level payments during the production of crops. This information has been provided in order to facilitate a better understanding amongst government entities as to financing options that can still yield a reasonable social rate of return from government assistance.

Summary Investment Analysis

Scenario / Result	Infrastructure Option		Comparison
	2 Crops pa	3 Crops pa	3 to 2 Crops pa
Total Development Costs per ha	R 74,255	R 108,556	46.2%
Total Development Costs per Member	R 35,051	R 51,241	46.2%
Income per ha with zero CAPEX loan	R 16,217	R 24,326	50.0%
Scenario A - 100% Grant Finance			
Income per ha	R 16,217	R 24,326	50.0%
Income per Member	R 7,655	R 11,482	50.0%
Payback period	4.6	4.5	2.5%
Return on Investment	21.8%	22.4%	2.6%
Scenario B - DAEA 40/60 Grant / Loan plus 30/70 Gijima KZN Grant / Loan			
Income per ha	R 11,772	R 16,531	40.4%
Income per Member	R 5,557	R 7,803	40.4%
Payback period	6.3	6.6	-4.1%
Return on Investment	15.9%	15.2%	-3.9%
Scenario C - 100% Loan Finance			
Income per ha	R 4,132	R 6,659	61.1%
Income per Member	R 1,951	R 3,143	61.1%
Payback period	18.0	16.3	9.3%
Return on Investment	5.6%	6.1%	10.2%



14. PROJECT PACKAGING

Critical Success Factor	To link the Development Plan to holistic Implementation for the whole development.
Action Plans	• Summarise project deliverables • Solicit funding entities • Secure funding agreements • Negotiate contract agreements
KPIs / Deliverables	Zulu Organics contractual partnership with all Stakeholders

PROJECT DELIVERABLES

Key Performance Indices

- Pilot initiative to develop 7 SGGs within 3 area clusters in the Ugu District Municipality to supply niche organic markets.
- Supply of approximately 4,100 tons of produce per annum to the new Ugu Agricultural Market, or, 10% of market break even volume.
- Formulation of an emerging policy for a holistic approach to the development of SGGs.
- Demonstrate holistic approach for the development of SGGs.

Development parameters

- 286 Beneficiaries / members
- 135 ha of land
- 2 Year Development Programme

Funding requirements

- Total Development Costs of R14,655M
- Average development cost of R108,500 / ha
- Average development cost of R51,200 / Member

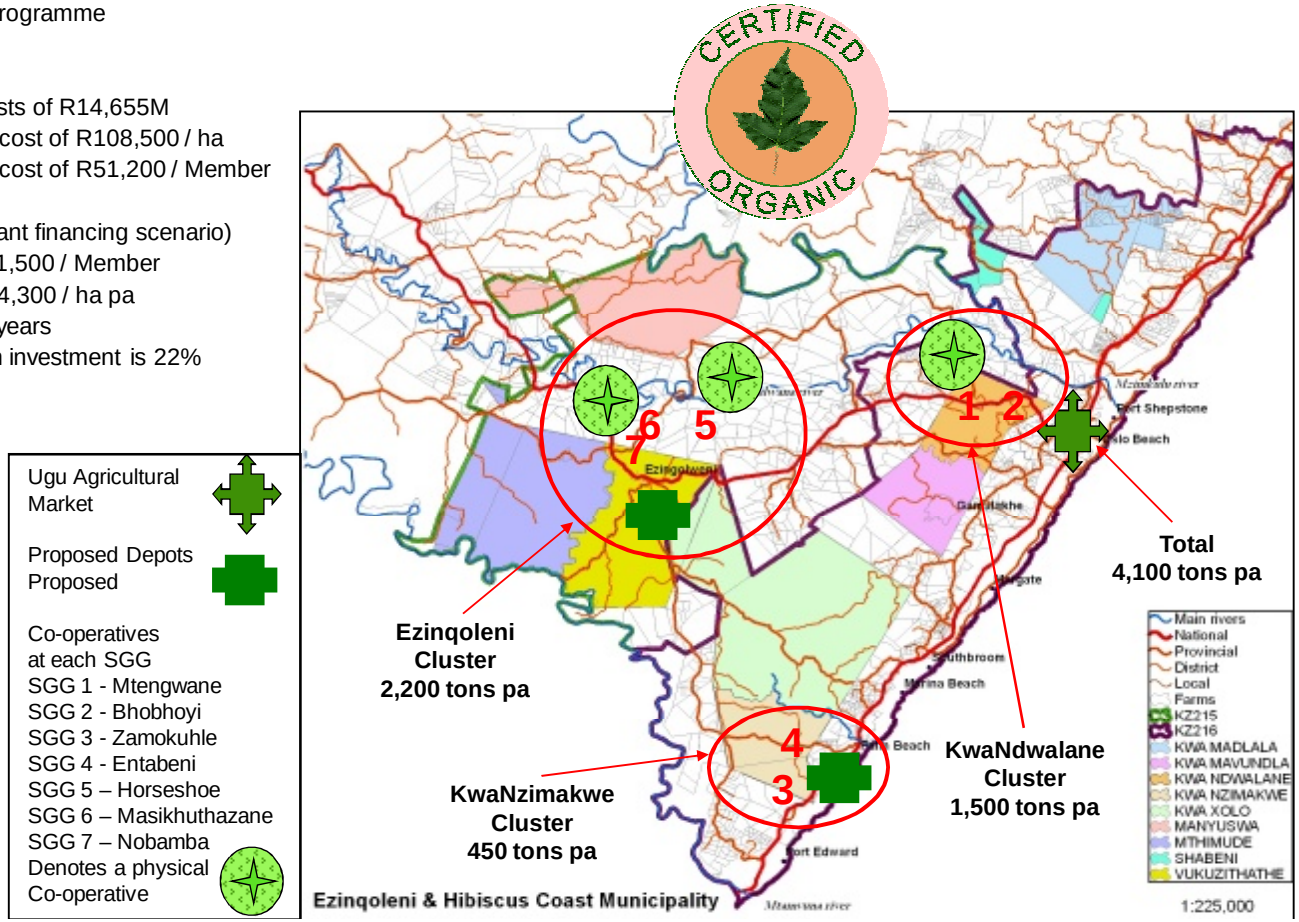
Investment analysis (grant financing scenario)

- Average income of R11,500 / Member
- Average income of R24,300 / ha pa
- Payback period is 4,5 years
- Social rate of return on investment is 22%

PARTNERSHIPS IN DEVELOPMENT

The primary purpose of this Development Plan is to provide the key to unlock the development potential of selected SGGs. The concluding part of this project solicited potential funding entities who were presented the Development Plan, highlighting its key performance indices and the associated funding requirements for implementation. It suffices to say that in arriving at the point of funding solicitation, a number of meetings and workshops were held during in which a greater awareness about the organics market and associated sustainable farming systems was conveyed that has resulted in a closer working relationship amongst all stakeholders.

The Development Plan is now being continually marketed towards potential funding entities until all the funding has been secured. To reiterate, the Development Plan, and its associated funding needs, has been compiled on the premise that implementation will be undertaken in a holistic manner. In other words, the whole Development Plan should be implemented within a two year period in order to realise the economies of scale implied in the budget estimates. It will make no economic sense to develop one or two SGGs, and/or, deliver only part of the tasks that have been planned. Failure to observe this important criteria will most likely result in failure of service delivery.



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The total cost of this Development Plan was R438,000, with Gijima KZN / European Union funding R279,000 and Zulu Organics providing R159,000 equity contribution, or, 36% of the project value. Zulu Organics has made a substantial contribution towards this Development Plan and has a legitimate expectation to be involved in the implementation thereof. In fact, through its contribution, Zulu Organics has leveraged a buy in as a preferred service provider. This Development Plan has a copyright by Zulu Organics, and if any aspect of it is used to procure services for any of the seven SGGs, and/or, related aspects that have been mentioned in the Development Plan, then it will only be fair to compensate Zulu Organics for their equity contribution.