Kannaland Municipality
Proposed development to address food security and protect biodiversity

Environmental and Sustainability Studies
Our Old Lady Cheese Factory

South side of the R62, Just outside Ladismith, Western Cape, South Africa

Hi my name is QarbonTimia. I am a Second Life Avatar representing the Qarbon Qampus Virtual World. Today we will be doing a real world assessment for a development. My Role is that of a food scientist at the University of the Western Cape and I am looking to build a facility to assess a new cheese we can cultivate in the Western Cape given the anticipated impacts of climate change.
QarbonTimia Cheese Factory
A radical new Cheese!

- What is the Cheese Factory:
  - A new cheese developed in the town of Ladismith in the style of Stilton (blue cheese).
  - The new brand will be “Our Old Lady Cheese”.
  - Recommended to be eaten with the famous Boplaas Port (Cape Ruby) from the next town.
  - A true local experience.

- Why is it different?
  - Only local community milk is used.
  - It is community based by supporting neighbouring farms through product recommendation.
  - It will create jobs in the local community and provide all the training needed to work in the factory without having to travel to far locations.
Kannaland Municipality
Proposed factory location

• The map below shows the location of the proposed cheese factory outside the town of Ladysmith in the Kannaland Municipality. The factory building and parking development is 265m long and 150m wide. It is located on the south side of the R62 in the direction Calitzdorp, where the road crosses the railway line just outside the town of Ladismith, Western Cape. The R62 is a popular scenic route that takes you through the vast Karoo.
Looking at the high temperatures that Ladismith experiences as seen in the graph above, during the summer, an energy efficient cellar cooling system will be used for cheese storage.

Oakle Energy Efficient cellar refrigeration system.
World Food Day

http://goo.gl/cPxgdX


www.maps.google.com
Kannaland Municipality
Profile

Description
Kannaland Municipality is a local municipality with the smallest population (24,767 people), located within the Eden District Municipality in the Western Cape province of South Africa. Its unique offerings of the ultimate experience in the heart of the Klein Karoo with local top-class cheese and brandy industries that make it an attractive tourist destination for local and foreign tourists who enjoy trying new delicacies.

General statistics
Area: 475,807.9ha
Total Population 2011: 24,767
Population density: 5.2/km²

Summary of the Kannaland Integrated Development Plan (IDP)

The IDP on food security is the desired development impacts government seeks to achieve, given government’s strategic priorities. Each outcome is clearly articulated in terms of measurable outputs and key activities to achieve the outputs.

The food security outcome for Kannaland IDP is intended to provide vibrant, equitable and sustainable rural communities with food security for all. This is going to be achieved by sustainable agrarian reform, improved access to affordable and diverse foods, improved rural services and sustainable livelihoods by rural job creation linked to skills training and promoting economic livelihoods enabling the institutional environment for sustainable and inclusive growth. This can be aided by institutional support.
Kannaland Municipality

Transformation and protection

Total area: 475807.9ha

Landscape transformation
One quarter of the municipal area has been altered to a state where no natural habitat remains.

Protected areas
Formal Land-based protected areas consist of 12 reserves in Kannaland Municipality covering 81911.2ha (17.2% of municipality).
Kannaland municipality

Vegetation types – original extent

Main vegetation types (>6% of municipal area)
- Western Little Karoo 33.29%
- Western Gwarrieveld 13.27%
- South Swartberg Sandstone Fynbos 11%
- Gamka Thicket 8.29%
- South Rooiberg Sandstone Fynbos 6.33%
- Eastern Little Karoo 6.02%

Other vegetation types (<6% of municipal area)
- Central Inland Shale Band Vegetation 0.71%
- Kango Conglomerate Fynbos 1.06%
- Kango Limestone Renosterveld 2.35%
- Little Karoo Quartz Vygieveld 0.7%
- Matjiesfontein Quartzite Fynbos 0.8%
- Montagu Shale Renosterveld 5.44%
- Muscadel Riviere 3.38%
- North Rooiberg Sandstone Fynbos 5.78%
- North Swartberg Sandstone Fynbos 0.86%
- Swartberg Altimontane Sandstone Fynbos 0.16%
- Swartberg Shale Fynbos 0.57%
Kannaland Municipality

Nationally listed threatened ecosystems

Percentage of municipal area now covered by threatened ecosystem shown below:

Critically Endangered (EC)
Muscadel Riviere 0.79%

Endangered (EN)
There are no endangered ecosystems in Kannaland Municipality.

Vulnerable (VU)
Eastern Little Karoo 2.46%
Kango Limestone Renosterveld 1.74%
Montagu Shale Renosterveld 3.62%

3 vulnerable ecosystems in Kannaland Municipality covering 37169.7ha (7.8% of municipality)
Kannaland Municipality
Nationally listed threatened ecosystems

Map below shows the original extent of the ecosystems which are now threatened.
Kannaland District Conservation Plan Assessment
Assessment location and Conservation Plan

Assessment location
The map to the right shows the assessment area which was run for the identified location of the potential site of the Old Lady Cheese Factory outside Ladismith on the Route 62.

Assessment results
The assessment report is a compilation of data of various spatial biodiversity data sets and planning production. These are:

• National layers
These are the most relevant layers for understanding the significance of an area’s biodiversity available at a national scale derived from terrestrial spatial data sets and protected area boundaries.

• The most relevant Biodiversity Conservation Plan (BCP)
Information from the municipality in which the assessment is located.
Kannaland District Conservation Plan Assessment
Ecosystems, forests and soils

**Threatened Ecosystems**

Section 1.1.1 of the report lists one national threatened ecosystems which occurs within the assessment area. Although this information is extracted from the original extents of these ecosystems both the SCP results discussed below and examination of imagery confirm that natural vegetation exists within the area of the assessment. If this is the case it is vulnerable.

The ecosystem in question is:
1. Montagu Shale Renosterveld FRs

Note that results for the National vegetation type section 1.1.2 confirms that the only vegetation types (Matjiesfontein Quartzite Fynbos and Montagu Shale Renosterveld) which may occur are these two ecosystems, where only Montagu Shale Renosterveld is vulnerable.

**Indigenous Forest Patches**

There were no indigenous forest patches (section 1.1.3)

**Soils**

The soil class encountered (section 1.1.4) is probably associated with the two ecosystems.

Further investigation into the soil properties revealed that the soil is freely drained and structureless. It is soil with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime is generally present in part or most of the landscape.
Kannaland District Conservation Plan Assessment
Rivers, wetlands and protected areas

National Fresh Water Priority Areas (NFEPA)

Wetlands
Five wetlands occur in the analysis area (section 1.2.1), one of these are artificial with condition Z3 where the percentage natural land cover <25% and two natural with condition Z2 where 4% is of total wetland area, one natural with condition C and one natural with condition Z1. All these wetlands have the lowest FEPA rank of 6, except the natural wetland with condition C with a FEPA rank of 5.

Rivers Units & Sub-quaternary catchments
The analysis area (section 1.2.2) is in a sub-quaternary catchment with no rivers. The analysis area was only located in this sub-quaternary catchment with no river present, and has the NFEPA status of an upstream management area. NFEPA upstream management areas are important areas to keep pristine for downstream river users.

Protected Areas (NBA 2011)
The analysis area intersected no formal protected areas (Section 1.3), although it is close by to a Formal land-based protected area (NBA 2011), the Ladismith-Kleinkaroo.

Note: The analysis area was not located in a Protected Area, however it is in close vicinity to the Ladismith-Kleinkaroo formal protected area and is situated in the Montagu Shale Renosterveld vegetation which is vulnerable but not protected.
Kannaland District Conservation Plan Assessment

**CBAs and ESAs**

In the Kannaland District Conservation Plan a lookup layer is provided which divides the area of the plan into units each of which gives biodiversity feature information responsible for the classification of the unit’s CBA map category CBA, ESA or PA. The analysis area intersected 7 such units (section 2). In the report each unit is listed separately rather than in a table due to the amount and complexity of information it contains.

**Critically Endangered ecosystems (CBAs)**

The analysis area intersected two CBA map lookup layer units which were classified as Critical Biodiversity Areas. Both were climate change process, corridor or linkage areas. The biodiversity features responsible for this classification indicated that no endangered species and national threatened ecosystems were present.

**Ecological Support Areas (ESAs)**

The analysis area intersected five CBA map lookup layer units which were classed as ESA are important for maintaining aquatic processes and may be transformed from natural e.g. industrialization i.e.. The CarbonTimia Old Lady Cheese Factory.

**Protected Areas (PAs)**

The analysis area intersected no CBA map lookup layer units which were classed as Protected Area.
The Old Lady Cheese Factory is in a great location near the small town of Ladismith. This factory will provide jobs and income to the community so that there isn’t a need to leave their community to find jobs in the city, allowing them to stay at home with their families. The cheese will only be made only from local milk, which will be their motto, coming from near by small-scale dairy farmers which will uplift the community economy.

The proposed factory is located on the Route 62, well known for its beautiful drive through the picturesque Little Karoo. The Old Lady Cheese factory will provide a pit-stop for passersby and give them the opportunity to see the inner workings of a cheese factory. This factory has the potential to keep growing (in employee size) as cheese tours through the factory can be evolved.

The cheese cultivated can be stored in the Oakle Energy Efficient cellar refrigeration system. This will be one story underground which will lessen the surface area natural vegetation interruption and maintain the areas natural beauty without the ‘over industrialization’ look. The factory is not located in any critically endangered vegetation areas and the restoration of the surrounding vegetation once the factory is established will be of main priority to the business. The cellar is large enough to store and cure the cheeses until they are ready to be distributed around the Western Cape.

The stilton-style cheese made from local milk will be one of a kind and is recommended to be eaten with the famous Boplaas Port (Cape Ruby) from the next town. This also encourages local food production in the area as this area will become known for its local delicacies.

I believe this Cheese factory will aid in food security, maybe not directly, but indirectly by providing job opportunities and income in order for the local households to be food secure!