Sunday’s River Valley Municipality
Proposed development to address food
security and protect biodiversity

Experimental organic Orange orchards
Sunday’s river valley
Kirkwood,
Eastern Cape, South Africa

Hi my name is Gush. 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
Researcher at the Environmental and
Sustainability Studies at the University
of the Western Cape and I am looking
to build an experimental facility to
feed the local and tourist demand for
organic oranges orchards in the
Sunday’s river valley in the Eastern
Cape
Experimental organic Oranges Orchards

What is the Experimental organic Oranges Orchards and why is it different?

Organic oranges and commercial oranges look the same but they do have some major differences. One of them is the way in which they are grown, organic oranges are grown on certified organic orchards that use no growth hormones or chemicals.

Organic orange growers rely on beneficial birds and insects to control pests and disease associated with oranges. Manure and natural compost is used on organic oranges orchards as opposed to chemical herbicides and fungicides that are used to grow their non-organic counterparts.

The Sundays Organic Growers Association (SOGA) is a cooperative of farms which support organic citrus growing and social sustainability. SOGA recognizes that for the past two generations unsustainable farming practices such as the overuse of chemical fertilizers has led to impoverishment of the soil. The use of compost and other organic soil amendments are the basis of the Associations approach to natural fertility management.
Experimental Organic Oranges Orchards
Where it will be located

A potential property site for the location of the New experimental organic oranges orchards has been identified in a town called Kirkwood. This valley is considered to be the citrus capital of the Eastern cape,. The region is well known for its conservation efforts with the Addo elephant national park being situated there.
Use climate similarities of nearby locations to identify better food to grow for local consumption.

Kirkwood

http://en.climate-data.org/location/19294/

Location of Experimental farms for new experimental organic oranges orchards in this exercise.

43 mm

Enon

http://en.climate-data.org/location/189582/

Location of nearest town and with agricultural activity of a similar kind.

43 mm

Addo National Park main Camp

http://en.climate-data.org/location/919714/

46 mm.
Summary of Overberg Integrated Development Plan IDP

- As a legislative requirement the municipality must draft an IDP over a five-year lifespan and assess and review it annually.
- Eco-tourism and agricultural potential. The Addo Elephant National Park (AENP) and citrus production are two important economic drivers in the SRVM.
- Support land-use planning and decision-making in order to achieve the sustainable development agenda and biodiversity conservation.

Profile

Description
Sundays River Valley Local Municipality is a local municipality in Cacadu District Municipality, Eastern Cape, South Africa. This area is one of the key production areas for citrus in South Africa. It also encompasses the Addo Elephant National Park and other significant areas of nature conservation. Within the municipality runs the 250 km long Sundays River, the fastest flowing river in South Africa. The river winds its way through the Zuurberg mountains and passes Kirkwood in the fertile Sundays River Valley; it empties into the Indian Ocean at Algoa Bay near Port Elizabeth.

General statistics
Area: 5,994 km²
Total Population 2011: 54,504
Population density: 9.1/km²
Sunday’s River Valley Municipality
Transformation and protection

Total area: 350,790.9ha

Landscape transformation
Most of the municipal area remains natural with 87.70%, while a small portion (13.20%) of areas has been transformed.

Protected areas
Formal land-based protected areas: 4 reserves in Sunday’s River Valley Municipality covering 90,199.7ha (25.7% of municipality)
There are no marine protected areas adjacent to Sunday’s River Valley Municipality
### Sunday’s River valley municipality

#### Vegetation types – original extent

**Main vegetation types (>10% of municipal area)**

- Suurberg Shale fynbos 6.14%
- Kowie Thicket 16.44%
- Albany Coastal belt 20.23%
- Sundays Thicket 29.94%
- Albany Alluvial Vegetation 7.9%

**Other vegetation types (<5% of municipal area)**

- Albany Dune Strandveld 1.56%
- Algoa Dune Strandveld 0.2%
- Bhisho Thornveld 0.07%
- Cape Coastal Lagoons 0%
- Cape Estuarine Salt Marshes 0.01%
- Cape Seashore Vegetation 2.76%
- Coega Bontveld 0.93%
- Groot Thicket 3.41%
- Southern Coastal Forest 3.21%
- Southern Mistbelt Forest 0.32%
- Sundays Noorsveld 3.45%
- Suurberg Quartzite Fynbos 4.1%
Sunday’s River valley Municipality
Nationally listed threatened ecosystems

Percentage of municipal area now covered by threatened ecosystem shown

Critically Endangered (EC)
The assessment area has no critically endangered vegetation types

Endangered (EN)
Albany Alluvial Vegetation 2.33%

Vulnerable (VU)
The assessment area has no vulnerable vegetation types
Sunday’s River valley Municipality
Nationally listed threatened ecosystems

Map showing the original extent of the ecosystems which are now threatened
Assessment location

The map to the left shows the assessment area which was run for the identified potential location of the New Experimental organic oranges orchards in Sundays River Valley

Assessment results

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

1. National terrestrial or aquatic spatial data sets and protected area boundaries and

2. The most relevant Biodiversity Conservation Plan (BCP) for the municipality in which the assessment is located. In the case the most relevant SCB is the Cacadu District Conservation Plan.
Cacadu District Conservation Plan Assessment
Ecosystems, forests and soils

Threatened Ecosystems

Section 1.1.1 of the report lists no national threatened ecosystems which occur with the assessment area. A list of all threatened ecosystem patches which original extent intersects the analyzed area. Note: the data represents the original extents of the threatened ecosystems; in other words, natural areas which have been converted to agriculture, mining and urban areas have been included.

Note the results for the National vegetation types section 1.1.2 confirms that the only vegetation types (ecosystems) that is endangered(EN) is:

Albany Alluvial Vegetation - AZa 6

Soils

The soil classes encountered (section 1.1.4) are probably associated agricultural land-use. Further investigation into their properties revealed that

1. Association of Classes 1 and 4: Undifferentiated structureless soils may have favourable physical properties, somewhat high natural fertility; relative wetness favourable in dry areas but can get water logged.

2. Non soil land classes has limit value for agriculture.

Indigenous Forest Patches

There were no indigenous forest patches (section 1.1.3)
Cacadu District Conservation Plan Assessment
Rivers, wetlands and protected areas

National Fresh Water Priority Areas (NFEPA)
Wetlands
There are no wetlands occur in the analysis area (section 2.1.1).

Rivers Units Sub-quaternary catchments
The analysis area does not intersect with any river units (section 1.2.2). Though there are four river units within the greater municipal area. The analysis area was only located in one sub-quartenary catchments.

Protected Areas (NBA 2011)
The analysis area did not intersected a formal protected area (Section 1.3).

Note: The analysis area was not located in one of the focus areas for Protected Area.
Cacadu District Conservation Plan Assessment

CBAs and ESAs

In the Addo 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 3 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)

Most of the analysis area intersected with lookup layer units which were classified as Critical Biodiversity Areas 4 on natural or 3 degraded land 7 units in total. The biodiversity features responsible for this classification indicated potential occurrence of both endangered species and national threatened ecosystems.

Ecological Support Areas (ESAs)

The analysis area intersected 3 CBA map lookup layer units which were classed as ESA or important for maintaining aquatic processes and may be transformed from natural e.g. farmland.

Protected Areas (PAs)

The analysis area intersected 2 CBA map lookup layer units which were classed as Protected Area, namely the Bosberg local nature reserve and the Addo elephant national park.
Recommendations, amelioration & offsets

Safeguard wetlands & ecosystem services

Plan to conserve the Endangered Albany Alluvial Vegetation Terrestrial ecosystem

Increase in organic agricultural activities that do not adversely affect the environment

Safeguard of vegetation types with smallest occurrence in the area