



NYANDENI LOCAL MUNICIPALITY

AGRICULTURAL SECTOR PLAN

JUNE 6, 2014

NYANDENI LOCAL MUNICIPALITY

Municipality Building, B. N. Nomandela Drive, Private Bag X 504, Libode
5160

TABLE OF CONTENTS

AGRONYMS	4
CHAPTER 1	6
1. INTRODUCTION.....	6
1.1. Background, Vision and Mission.....	6
1.2. Overview of agriculture in Nyandeni Local Municipality	7
1.3. Purpose of the Nyandeni Agricultural Sector Plan	9
CHAPTER 2	10
2. CONTEXT FOR AGRICULTURAL DEVELOPMENT IN NYANDENI LOCAL MUNICIPALITY	10
2.1. INTERNATIONAL AND NATIONAL TRENDS	10
2.1.1. Globalisation and liberalisation.....	10
2.1.2. Increased demand and change in food consumption patterns	10
2.1.3. Intensification of agricultural production	11
2.2. POLICY FRAMEWORK.....	12
2.3. INSTITUTIONAL CONTEXT	13
CHAPTER 3	14
3. RESULTS OF THE NYANDENI SITUATION ANALYSIS.....	14
3.1. Socio-economic survey summary	14
3.1.1. Basic sample statistics summary	14
3.1.2. Results and discussion	15
3.1.3. Livestock species owned.....	21

3.1.4. Main water sources from the study area	21
3.1.5. Main income sources from the study area.....	22
3.1.6. Summary	22
3.2. VELD CONDITION ASSESSMENT.....	24
3.2.1. Distribution of vegetation types across the municipality	24
3.2.2. Vegetation ecological condition and grazing value across the wards.....	25
3.2.3. Successional trends and vegetation reaction to different grazing intensities	27
3.2.4. Rangeland condition and vegetation types for Nyandeni Local Municipality	31
3.2.5. Intervention proposals/Recommendations	32
3.3. SOIL SURVEY.....	35
3.3.1. Results and discussion	35
3.3.2. Intervention proposals/Recommendations	37
CHAPTER 4.....	40
4. STRATEGIC INTERVENTION	40
4.1. Introduction	40
4.2. Sector specific interventions	47
CHAPTER 5.....	61
5. IMPLEMENTING THE STRATEGIC SECTOR PLAN	61
5.1. Introduction	61
5.2. Strategic integrated implementation approach	62

5.2.1. Sustainable livelihood analysis (SLA) approach.....	62
5.2.2. Community-public-private partnerships (CPPP).....	66
5.2.3. Monitoring and evaluation	69
CHAPTER 6	70
6. CONCLUSIONS AND RECOMMENDATIONS	70

AGRONYMS

ARC:	Agricultural Research Council
CEC:	Cation Exchange Capacity
CSIR:	Council for Scientific and Industrial Research
DAFF:	Department of Agriculture, Forestry and Fisheries
DBSA:	Development Bank of Southern Africa
DRDAR:	Department of Rural Development and Agrarian Reform
DFA:	Development Facilitation Act
DTI:	Department of Trade and Industry
EC:	Eastern Cape
EIA:	Environmental Impact Assessment Study
FAO:	Food and Agriculture Organisation
FCC:	Fort Cox College of Agriculture and Forestry
GDP:	Gross Domestic Products
IDC:	Industrial Development Cooperation
LED:	Local Economic Development
NAMC:	National Agricultural Marketing Council
NGO:	Non-Governmental Organization

NMMU:	Nelson Mandela Metropolitan University
NLM:	Nyandeni Local Municipality
RSA:	Republic of South Africa
RDP:	Rural Development Plan
SANEC:	South African Netherlands Chamber of Commerce
SOM:	Soil Organic Carbon
TARDI:	Tsolo Agriculture and Rural Development Institute
UFH:	University of Fort Hare
WSU:	Walter Sisulu University

CHAPTER 1

1. INTRODUCTION

1.1. Background, Vision and Mission

The Nyandeni local Municipality, which is one of the Municipalities under the OR Tambo District Municipality of the Eastern Cape (EC) Province of South Africa, is located in the Western Pondoland of the Province. It is made up of three Magisterial Districts: Ngqeleni, Libode and Port St Johns, and two local municipalities, i.e. Nyandeni Municipality and Port St Johns Municipality. It has 33 wards, with a population size of approximately 319 875 (Department of Local Government and Traditional Affairs, 2012).

South Africa is characterized by high levels of poverty, especially in rural areas where approximately 70% of South Africa's poor people reside. The incomes of these households are constrained because the rural economy is not sufficiently vibrant to provide them with remunerative jobs or self-employment opportunities. According to the Department of Local Government and Traditional Affairs (2012), the local economic activities make modest contribution to the economy. Most rural households in Nyandeni rely on external sources of income such as state grants. There are many reasons for this state of affairs, but most of these are rooted in policies implemented in the past. While natural conditions such as climatic variability are notable risk and cost factors in farming, uncoordinated policies and the unintended effects of policies have in the past contributed to sub-optimal growth and investment in the sector as well. If rural areas had a foundation that would support greater earning and spending power, the rural economy would be stronger, grow and create more opportunities for wage and self-employment.

Monde (2003) demonstrates how households in the Eastern Cape attained food security. In that study households in the province employed a variety of strategies including producing own food to secure their food needs. However, own production of food was not important in terms of attaining food security. Households relied on purchasing food from urban markets as their main food security strategy. One of the main reasons for this state is that many farmers in the province are involved in dry land agriculture. This condition is exacerbated by erratic rainfall, which is the characteristic feature of the province. With reference to South African conditions, Lipton (1996) suggests that irrigated agriculture is one of the most promising avenues for small-scale farming sector to develop. A number of studies conducted in the central Eastern Cape showed that the situation regarding poverty in this Province is not getting any better (Fraser *et al*, 2003; Monde *et al*, 2005; Monde *et al*, 2007).

1.2. Overview of agriculture in Nyandeni Local Municipality

The EC province known as the "livestock" province of the country and is home to 21% of South Africa's cattle, 28% of its sheep and 46% of its goats. In terms of agricultural crops, the province is a major producer of chicory, pineapples, tomatoes, citrus fruit, deciduous fruit and tea. The economic drivers in Nyandeni are agriculture, tourism and SMMEs. Agricultural products include hemp, maize and other cereals, fruit and fishing. Tourism has more potential in the coastal area of Port St Johns. SMMEs are swing, spaza shops, poultry, piggery, crafts and others.

The Nyandeni Local Economic Development (LED) strategy of 2005 identified agriculture as one of the key elements of the local economy (Department of Local Government and Traditional Affairs, 2012). The vision of the Nyandeni Municipality is

a “self-sustaining and vibrant economy that supports sustainable rural livelihoods through coordinated community-anchored development”. One of the goals is to promote agriculture as a viable livelihood strategy and as a productive commercial sector (Department of Local Government and Traditional Affairs, 2012). The expected outcomes are:

- Increase in rural incomes and livelihood;
- Improvement in household food and nutrition security;
- Access to markets for primary and secondary agricultural products; and
- Increase in employment

Only 9.63% of the total land area is deemed suitable for crop production, with a further 14.2% having limited potential for cropping. The remainder of the land is said to be best suited to livestock and forestry (Department of Local Government and Traditional Affairs, 2012). Opportunities for crop production exist in the western part of the local municipality, with intensive agricultural activity recommended for areas between Mthatha, Libode and Ngqeleni. However, the potential for full utilisation of well-situated land in agricultural activities is undermined by institutional (unresolved land claims) and infrastructural (road access) factors. These factors effectively become barriers to market development in Nyandeni (Department of Local Government and Traditional Affairs, 2012).

With regard to land for agricultural purposes, the land tenure presents a number of challenges to local economic development in Nyandeni, particularly with respect to property rights for investors. The uncertainty of protection of rights is a major huddle in attracting investment into Nyandeni (Department of Local Government and

Traditional Affairs, 2012). The Municipality will have to identify ways in which land tenure can be secured in the area.

1.3. Purpose of the Nyandeni Agricultural Sector Plan

In 2012, the Nyandeni Local Municipality commissioned the University of Fort Hare to develop an agricultural sector plan for the Municipality. The Agricultural sector Plan is a document that refers to all activities relating to agricultural input provision, farming and the processing and distribution activities that add value to farm products.

The development of the agricultural sector plan has been a participatory and inclusive process involving consultation with key stakeholders (farmers, Municipality and government officials) in the area. The main aim of the sector plan was to come up with a vision for a prosperous agricultural sector in the Municipality. In order to obtain this, the university began with a situation analysis eliciting information on socio-economic characteristics of households in all wards (33) in that municipality. This was followed by the analysis of the rangeland and arable land (ownership of land as well as the quality of soils). This document therefore consolidates information on the status quo of agriculture in Nyandeni Municipality and makes recommendations regarding the interventions to be implemented. The document also gives guidelines on the implementation strategy.

CHAPTER 2

2. CONTEXT FOR AGRICULTURAL DEVELOPMENT IN NYANDENI LOCAL MUNICIPALITY

2.1. INTERNATIONAL AND NATIONAL TRENDS

2.1.1. Globalisation and liberalisation

Agricultural production in any part of the world is increasingly being affected by globalisation because of decreasing barriers of time and space that constrains human activity and the increasing social awareness of these changes (Byrne and Glover, 2002). Technological breakthroughs in transportation and communication technologies (FAO, 2003) and liberalisation of international trade and investment are spurring globalisation (DTI, 2004). For example, it is increasingly becoming easier to move agricultural produce through long-distances within a short time. On the other hand, globalisation is contributing to a growing disparity among agricultural systems and population and there is little improvement in food security and production in Africa (Halberg, 2005). Moreover, most rural households lack the necessary ecological and financial resources to attract international and organised markets. Many reports conclude that globally agricultural development contributes to a myriad of environmental problems such as loss of biodiversity and soil degradation (Halberg, 2005).

2.1.2. Increased demand and change in food consumption patterns

The organic food (chemical free) industry is the fastest-growing industry segment worldwide (WWF, 2012). World organic food sales jumped from \$23 billion in 2002 to \$52 billion in 2008 (Datamonitor, 2009).

South Africa has varied vegetation types, biodiversity, and climate and soil types. Farming activities in the country range from intensive crop production to livestock ranching. Only 12% of the country is ideal for rain-fed crop production due either to aridity or poor soils. However, 69% of the country is suitable for grazing, thus livestock farming is the largest agricultural sector in the country (FAO, 2012).

South Africa's population grew by 1.34% between 2012 and 2013 compared to 1.30% between 2002 and 2003. By 2013 the total population stood at 52.9 million (Statistics SA, 2013). This steady growth in population calls for concomitant increase in food production to feed the people. Post-apartheid reforms and the general rise in wealth among the general population have ushered in a steadily bulging middle class. This expanding middle class has led to a shift in food consumption patterns from staple grain crops to a more diverse diet. There is a decreasing trend to consume maize and bread, and a huge increase in consumption of chicken and eggs. Meanwhile, the per capita consumption of fruits and vegetables has remained constant, while beef, mutton, pork and milk consumption has declined (Agricultural Statistics, 2008).

2.1.3. Intensification of agricultural production

The number of farms continues to decrease mainly due to declining profits from farming and water scarcity. For example, between 1990 and 2008, the total number of farms decreased by about 30% (Agricultural Statistics, 2008). Consequently, the area under maize, wheat and dairy has decreased significantly over the last 20 years (Agricultural Statistics, 2008). However, agricultural production has remained almost constant due to increased intensification of production through increased irrigation, fuel, fertiliser, mechanisation and genetically modified seed inputs. Nonetheless, agricultural intensification comes at a price because the cost of production increases

with increase in agricultural intensification. Since the costs of agricultural inputs are closely dependent the oil price and exchange rate fluctuations, farmers have little control. Agricultural intensification has resulted in redundancy of jobs available on farms due to increased mechanisation. Such jobless population is offloaded to the rural areas and is affecting the country's social well-being.

2.2. POLICY FRAMEWORK

South Africa has a well-developed dual agricultural economy. The large-scale commercial and small-scale communal farming exists side by side. Although agriculture contributes a relatively small percentage of the total GDP, it is an important employer and a foreign exchange earner (WWF, 2012). The post-apartheid South Africa is market by huge social and economic adjustments that have given way to an open, market-oriented economy that is supported by strong structural reforms. These objectives are: economic growth; reducing income inequalities, especially along racial lines; and eliminating poverty. The goal of agricultural policy reform is to ensure that agriculture contributes to national objectives through the following: (i) increased agricultural productivity and output to increase the sector's contribution to national economic growth (ii) increased incomes for the poorest groups in society, mainly blacks, by creating opportunities for small and medium-scale farmers to increase their production (iii) increased employment opportunities, and (iv) improved household food security with expanded production and equitable distribution of resources.

Small scale farming

Small scale agriculture in South Africa is generally synonymous with non-productive and non-commercially viable agriculture practiced by black people. Farmers involved

in small scale agriculture have limited access to land and capital, and receive inadequate or inappropriate research and extension support (DAFF, 2013).

2.3. INSTITUTIONAL CONTEXT

Municipalities are mandated by the constitution to govern, provide services and promote social and economic development (RSA, 1996). Furthermore, a number of policies such as the Development Facilitation Act (DFA) empower municipalities to set statutory land development objectives for clear approach to land development. Local government has been described as the “hands and feet” (1996) of reconstruction and development in South Africa.

CHAPTER 3

3. RESULTS OF THE NYANDENI SITUATION ANALYSIS

3.1. Socio-economic survey summary

This section presents a summary of the socio-economic profile of Nyandeni Municipality focussing on (a) basic sample statistics summary, (b) access to land and its utilisation by the general population, (c) main crops and livestock species, (d) main water source and (e) main income sources.

3.1.1. Basic sample statistics summary

This part of data collection employed an interview schedule (questionnaire), which was directed to the rural households in the study area eliciting information on demography, sources of income, expenditure, markets, institutions, organizations and general farming activities. The unit of analysis was a household. Interviews were carried out with the heads of the households. When a head of household was absent at the time of the interview, other senior members of the household were interviewed. Using a systematic sampling technique, a sample size of 15% (proportion of households surveyed) was selected. However, for ward 19, the sample size was 30%. The main reason for a bigger sample size in this ward was that the land-based activities seem to possess a number of opportunities in the two villages (Nomcampa and Old bunting) in particular. So, a decision was taken to interview more households in order to get a real picture and thus eliminate the problems posed by smaller samples. Basic descriptive statistics were used to confer the portrayed meaning of sample parameters of interest to the study. Table 1 presents a brief sample statistics summary.

In trying to understand the leadership status of households, the survey revealed four possibilities as follows households headed by (a) the father, (b) spouse (c) son/daughter and (d) grandchild.

3.1.2. Results and discussion

3.1.2.1. General Household demographics

ROn average the survey noted that most households in the study area were headed by the farmer denoted by “mean 1” in Table 1.

Table 1: Basic sample statistics summary

Sample Statistics											
	Household Head	Age	Gender	Marital Status	Highest Education	Employment Status	Time home	Household Size	Active population	No of Children	No of adults
N	1261	1261	1261	1261	1261	1261	1261	1261	1261	1261	1261
Mean	1.00	58.00	2.00	2.00	6.01	.00	1.00	6.13	3.00	2.00	4.00
Skewness	2.221	-.057	-.131	.489	.091	4.082	2.898	.419	.662	.649	.588
Minimum	1	20	1	1	0	0	1	1	0	0	1
Maximum	4	94	2	4	14	3	3	18	10	9	11

Key for codes used:

1. Household head: 1 = head: 2 = Spouse: 3 = Son/daughter: 4 = Grand Child
2. Gender: 1 = Male: 2 = Female
3. Marital status: 1 = Single: 2 = Married: 3 = Divorced: 4 = Widow
4. Employment status: 0 = Unemployed: 1 = Full time: 2 = Part time: 3 = Self-employed
5. Time at home: 1 = always: 2 = weekends: 3: holidays

Definitions

- Active population: number of adults aged between 15 – 64
- Children: those under the age of 5
- Adults: number of family members above the age of 15 years

With reference to age, results indicate that the average age of the household head was 58 negatively skewed with a minimum age of 20 and a maximum age of 94. Sample statistics results further indicate that the sample was dominated by females defined in a married marital status with a median education level of up-to grade 6 for

the household head. Most of these respondents were unemployed spending most of their time at home with an average household size of six family members.

The survey defined active population as number of adults regardless of sex aged between 15 and 64 years. On average each household had an active population of 3 family members normally always available at home defined as unemployed. The study also defined children as those under the age of 15 years. Sample results reveals that on average each household during the study time had 2 family members defined under the children category as shown in Table 1. Lastly the survey defined adults as family members above the age of 15 years. Thus far, on average each household had 4 adults also always available at home.

These findings therefore suggest that the municipality may be dominated by households headed by a household head of an average age of 58 years defined in a married category with an average education level of up to grade 6. Also, most of these households are unemployed and spend most of their time at home with an average family size of 6. Three active family members are also suggested on average across all households.

3.1.2.2. Access to land and its utilisation

Home gardens

Sample results indicate that 66% of the respondents had access to a home garden with plot sizes under 0.5ha, 30% with plot sizes greater than 0.5ha and only 4% did not have access to a home garden. These home gardens were food plots within the boundaries of residential sites. The distribution suggests that on average (96%) households had access to home gardens with just a few households without access (4%).

The survey further queried home garden land utilisation status as illustrated in the lower graph in Figure 1. The idea was to estimate level of full utilisation versus level of underutilisation based on home garden cropping history for the last five years. With respect to home gardens under 0.5ha, results indicate that 71% of these gardens were fully utilised while 29% were underutilized. For home gardens with a plot size above 0.5ha, results reveal that 23% were fully utilised while 77% were underutilized. The observed distribution therefore suggests full utilisation with smaller home gardens ($\leq 0.5\text{ha}$), and underutilisation with larger home gardens ($> 0.5\text{ha}$).

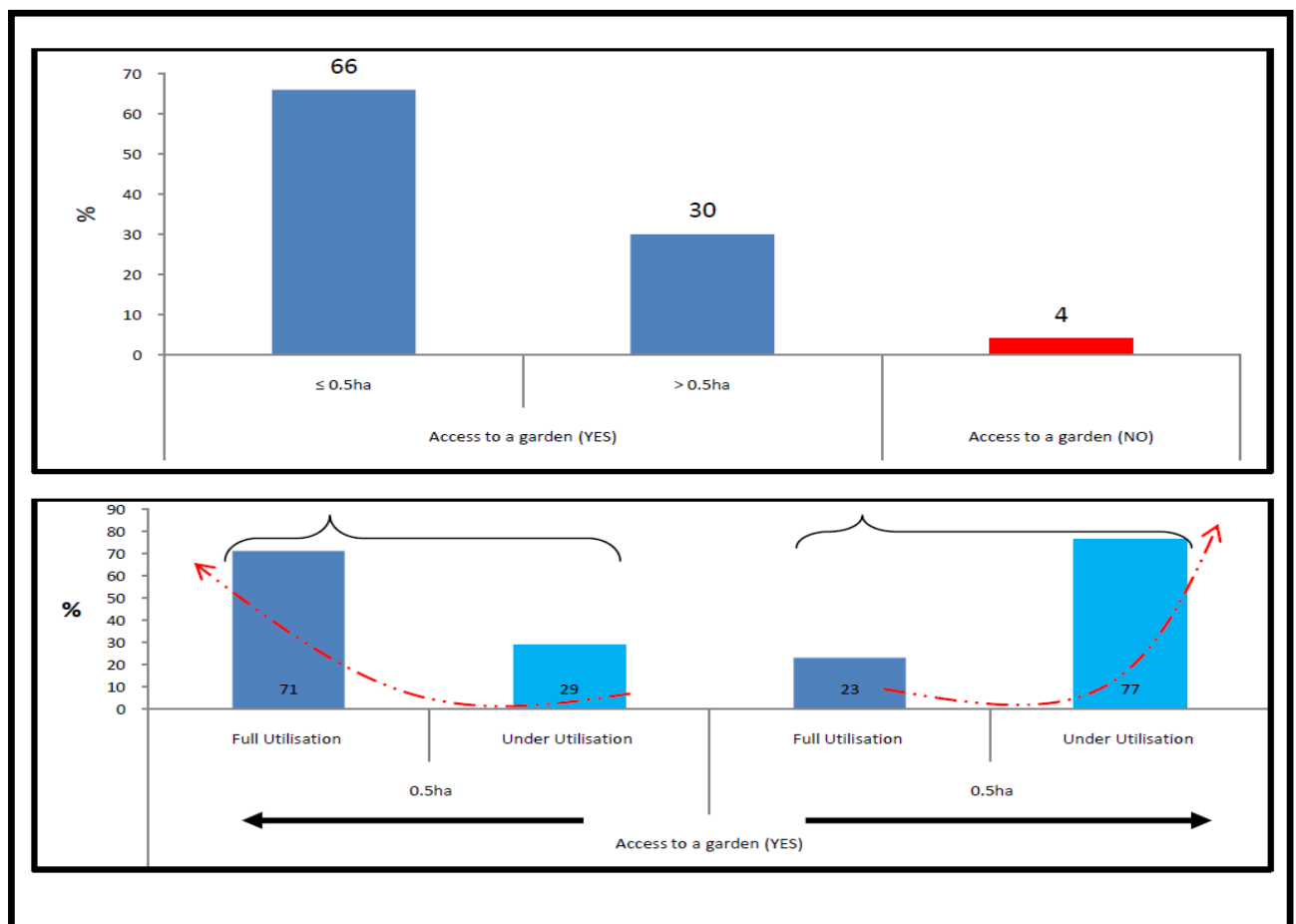


Figure 1: Distribution of respondents with respect to access to a home garden by size and its utilisation (n = 1261)

Main crops cultivated in home gardens

The survey also investigated the main crops grown across all the 31 wards as summarised in Figure 2. Main cultivated crops reported from the study area include; maize (28%), potatoes (16%), cabbage (15%), spinach (14%) and pumpkin/butternut (11%). Dry beans (9%) and onions (3%) were also other home gardens crops grown although not that common as suggested by the distribution illustrated in Figure 2.

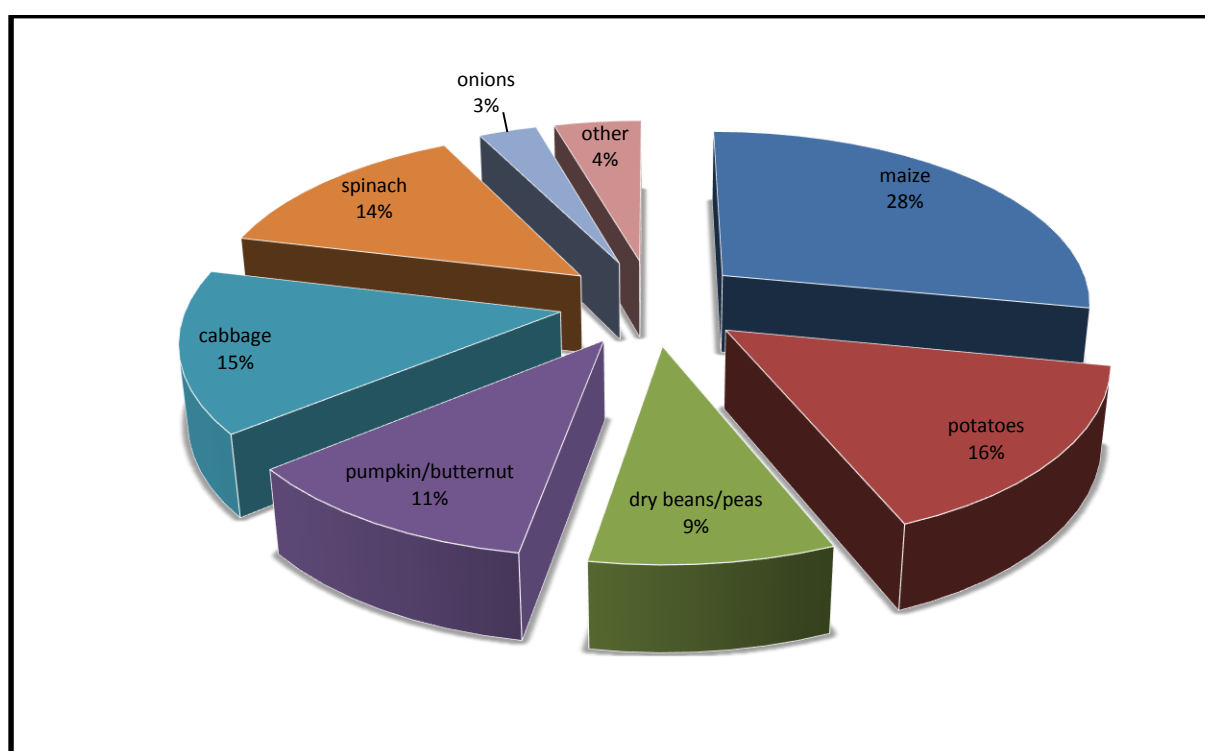


Figure 2: Main crops cultivated in home gardens (n = 1261)

3.1.2.3. Arable field land

The study further investigated ownership of and access to arable field land as summarised in Figure 3. Results indicate that 59% of the sample population did not have access to an arable field land. For the 41% with access to an arable field land, 27% had field land under 5ha and 14% had field land above 5ha. The observed distribution suggest that most of the respondents did not have access to an arable

field land (59%) and for those who had access their arable land sizes were mostly under 5ha with a few respondents with arable land sizes above 5ha.

In terms of utilisation results indicate that a general trend of underutilisation was common across all arable land sizes although more pronounced for land sizes above 5ha. For respondents with fields under 5ha, only 38% fully utilised their land while 62% underutilized their land. For respondents with fields above 5ha, only 10% fully utilised their land while 90% underutilised their land.

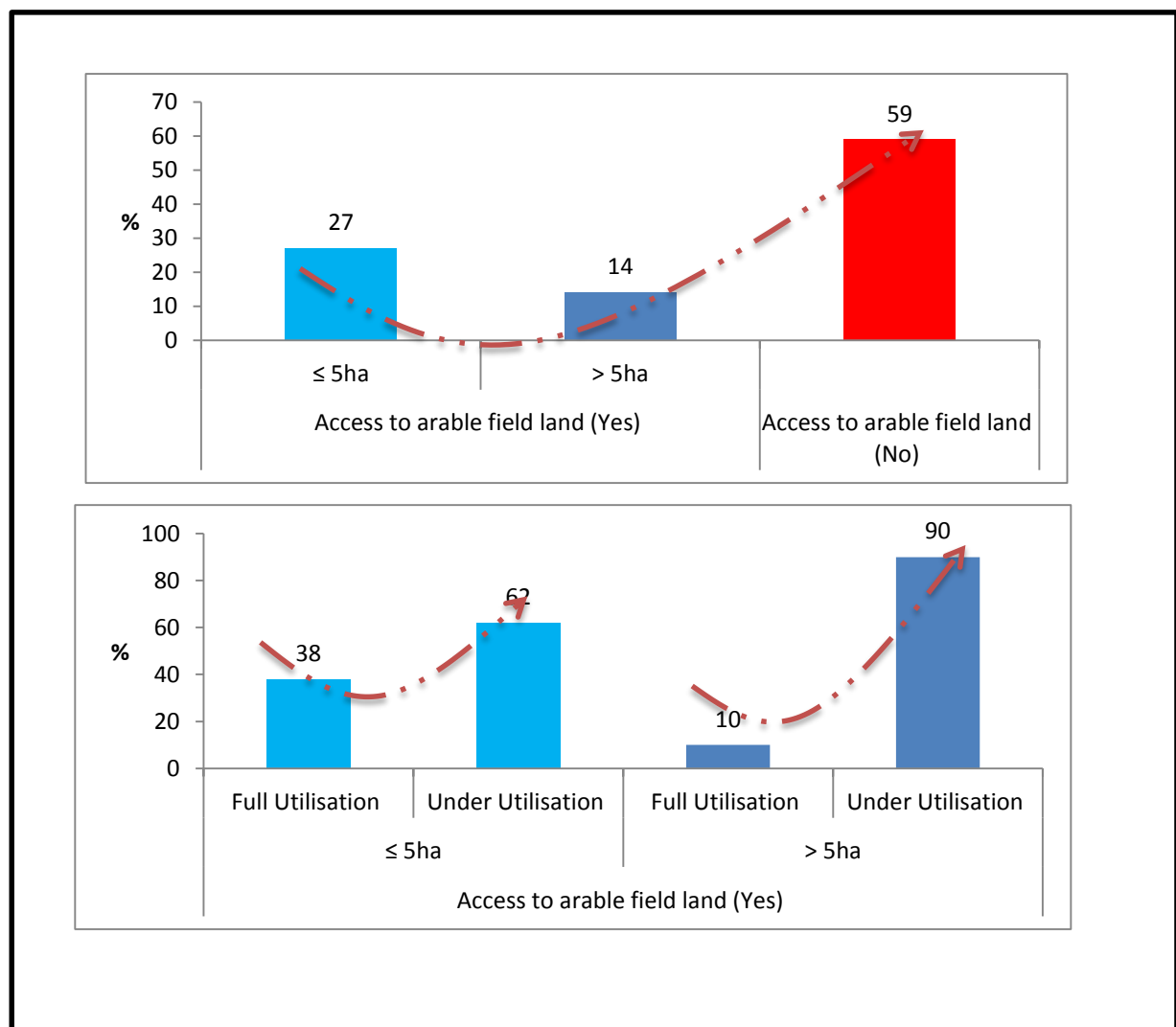


Figure 3: Distribution of respondents with respect to access to arable field land by size and its utilisation (n = 1261)

The observed distribution suggest high level of underutilisation for the few respondents who had access to arable field land.

Main crops cultivated in arable field lands

Figure 4 presents a summary of the main reported crops grown in arable fields from the study area. The following crops were reported as the main crops cultivated from the study area; maize (46%), Beans/ Peas (31%) and Pumpkins (23%).

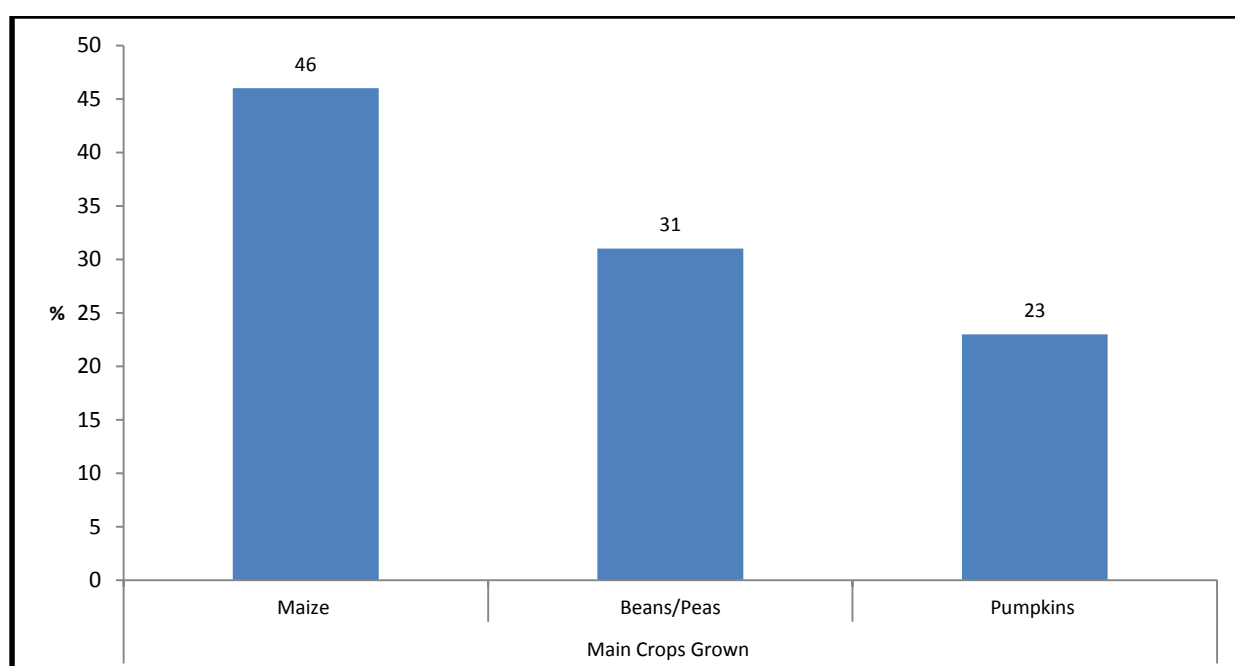


Figure 4: Main crops cultivated from the study area (n = 1261)

The distribution suggests that maize is the dominant crop grown across the entire municipality. It is also important to note that all crop production (home garden and field crop) were under natural rainfall with not irrigation.

3.1.3. Livestock species owned

Quite a number of livestock species were kept by the respondents as shown in Figure 5. A majority of the respondents were involved in traditional chickens (20%), sheep (16%), goats (12%) and cattle production (11%).

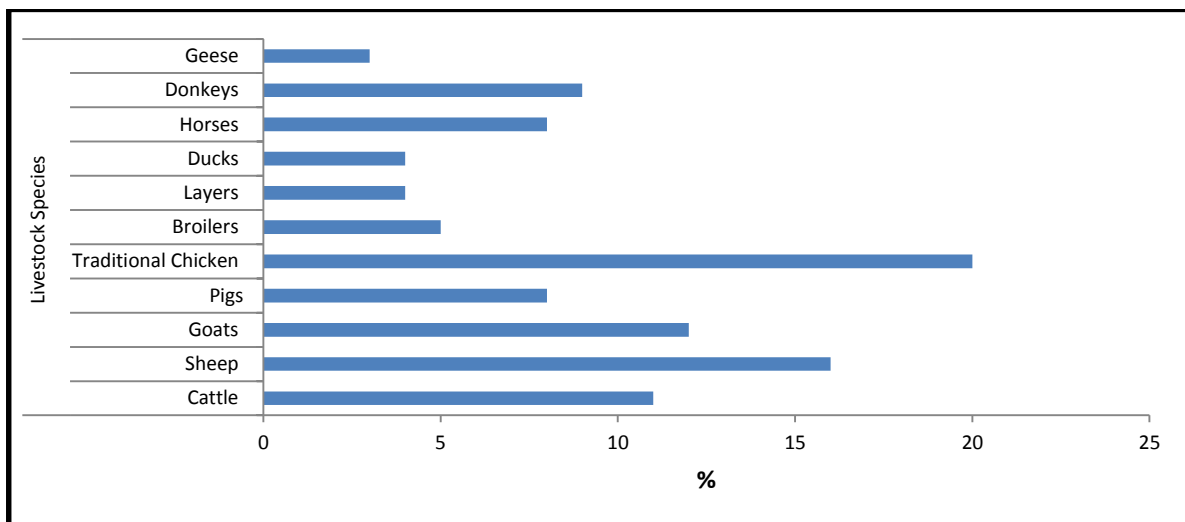


Figure 5: Livestock species owned by respondents

3.1.4. Main water sources from the study area

Figure 6 presents a summary of the reported main water sources from the study area. River water emerged as the main water source from the study area with minor contribution from other sources like rain water tank (7%), stock dam (4%) and RDP (2%).

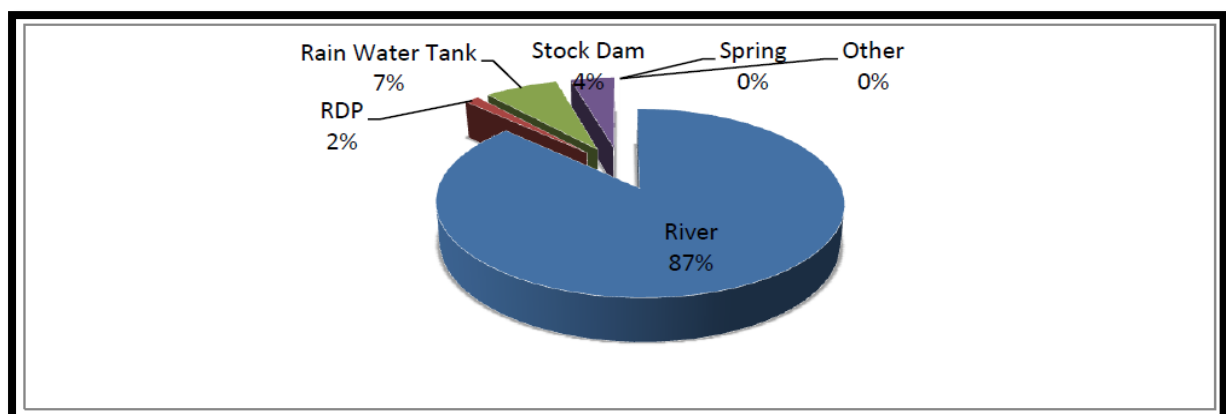


Figure 6: Main water sources from the study area (n = 1261)

3.1.5. Main income sources from the study area

Figure 7 presents a summary of the reported main income sources from the study area. Results indicate that a majority of the households derived their incomes from external sources (86.7%) such as salaries and wages (25.6%), child support from parents (20.2%) and old pensions (19.8%). The distribution indicates minor contribution of internal sources (13.1%) to household income mainly from livestock sales (5.9%), hawking food (2.3%) and spaza shops (1.8%).

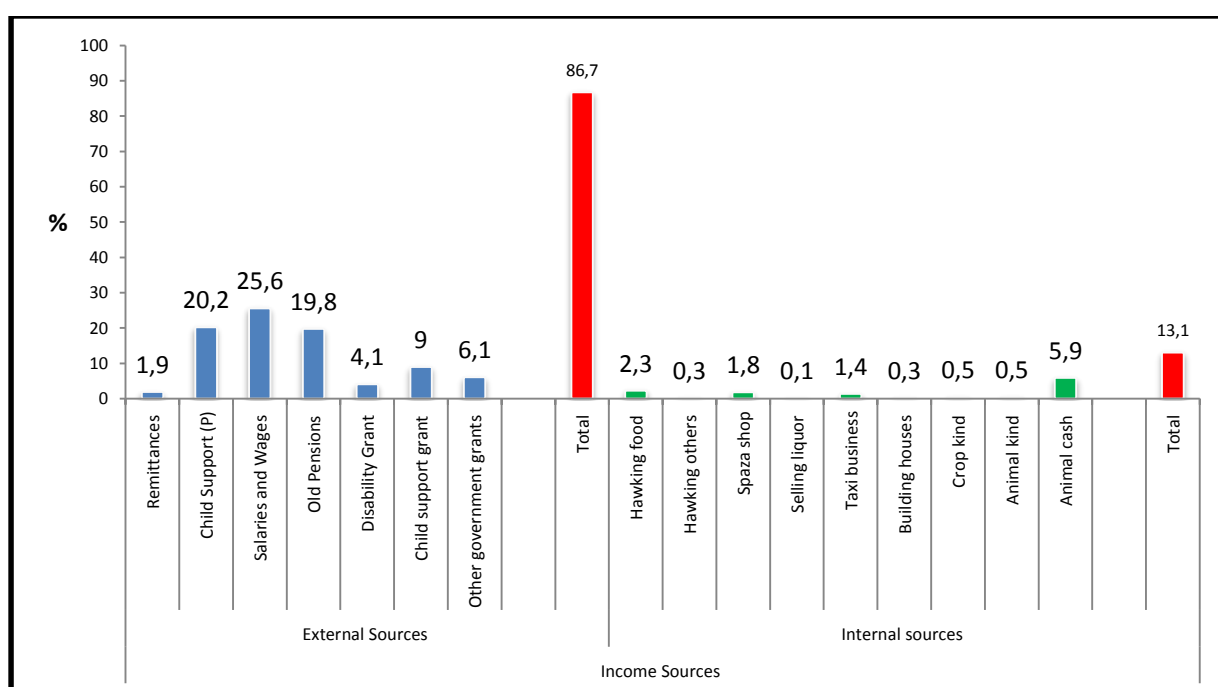


Figure 7: Main income sources from the study area (n = 1261)

3.1.6. Summary

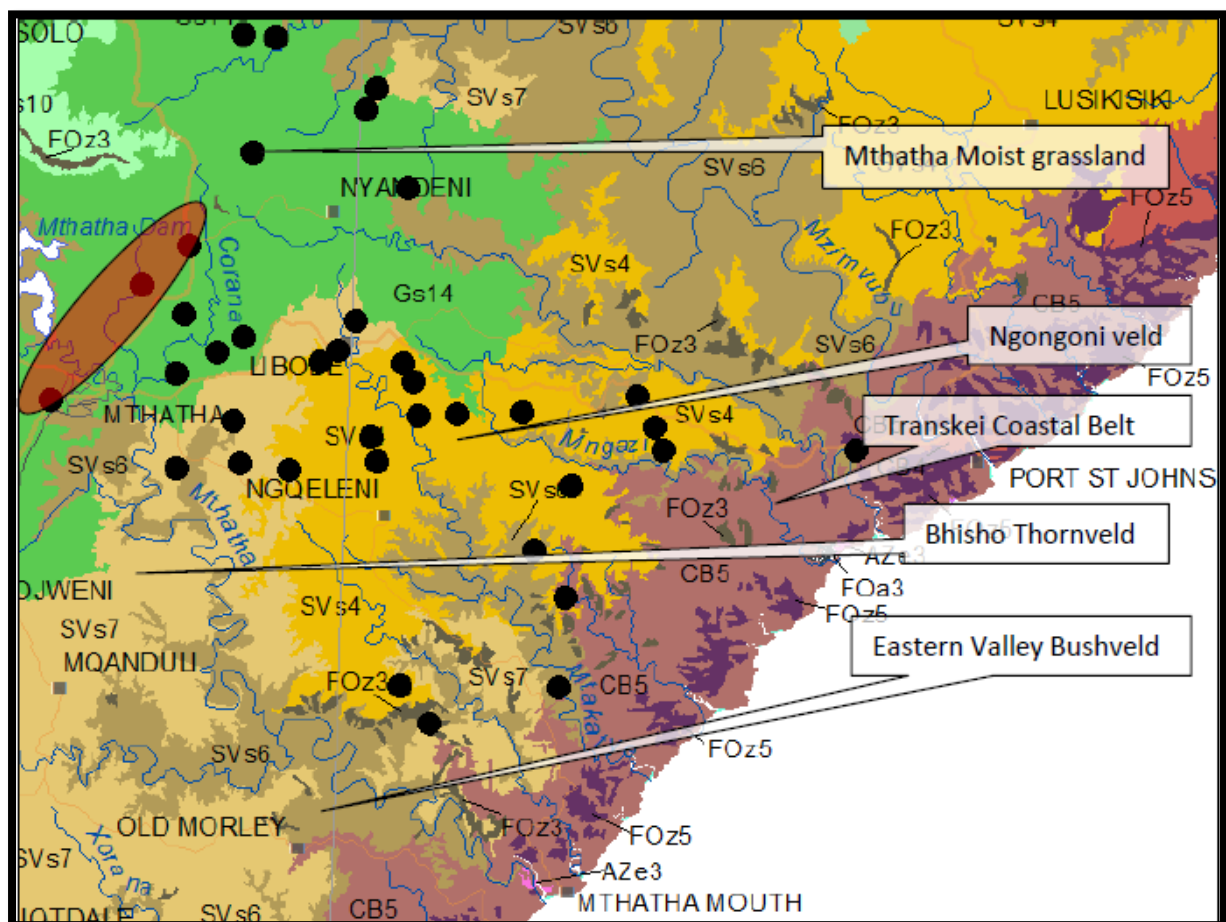
Socio-economic survey summary suggest a rural community with an average household head age of 58 years educated up to grade 6 with a family size of 6 members. The household heads on average spent most of their time at home since they were unemployed. Most of these household had access to home gardens of plot

sizes below 0.5ha mainly growing maize potatoes and cabbage. A majority of these household did not have access to arable field land for field crop cultivation. With reference to livestock ownership, a majority of these households owned dual purpose chickens, sheep, goats and cattle. River water was the main water source from this community, who relied mostly on external income sources.

3.2. VELD CONDITION ASSESSMENT

3.2.1. Distribution of vegetation types across the municipality

The distribution data collection was according to the vastness of the vegetation types and location of the wards within the vegetation types. Map 1 indicates that the majority of transects were laid at the Mthatha moist grassland, Ngongoni veld and Bhisho thornveld, which indicates that the most of the wards in this municipality are located within these three vegetation types. This three vegetation types based on their vastness and vegetation status generally have higher agricultural potential.



Map 1: Vegetation map depicting distribution of transects within Nyandeni Municipality, (Mucina and Rutherford, 2006).

Thus far, although other vegetation types occur in this municipality, the dominant agricultural areas are located within these three vegetation types. The Transkei Coastal Belt is also bigger but relatively dominated by bush cover with rougher landscape, and that reduces its agricultural potential to only certain localities and for specific agricultural entities.

3.2.2. Vegetation ecological condition and grazing value across the wards

Ecological condition reveals the vegetation persistence within various seasons of the year and productivity reliability. Vegetation persistence has implications on the ecological stability of an area and indicates its potential to be restored with improvement in management or reinforcement through introduction of plant propagules.

The large number of perennial species was observed; these include grasses such as *Andropogon amplexans*, *Aristida junciformis* and *Bracharia serrata*. The ecological condition was rated according to the percentage of perennial species occurrence. At Nyandeni Municipality, the perenniality of herbaceous species ranged between 56% at Ward 1 (Corana) to 85% at Ward 13 (Ndindimeni). Thus, 16 Wards demonstrated the stronger ecological condition (>70% - 85%), whilst four wards have between 60 – 70% with one showing lowest (56%) strength in ecological condition. On average Nyandeni Municipality could be scored at 73.8% of herbaceous ecological condition as demonstrated by higher occurrence and abundance of perennial grasses.

It is important to note that the strong vegetation ecological character could be ascribed to low (>5%) abundance of annual grasses. However, Corana's low ecological

condition could be attributed to relatively higher (14%) abundance of annual grasses with relatively higher (21.8%) frequency of bare patches, which signifies that Corana poor cover. Although Mgojweni (Ward 29) was observed to have lower (61.5%) vegetation perenniality, it would recover relatively easier with improved grazing management compared to other wards with similar ($\pm 60\%$) ecological strength because it has higher (11.8%) occurrence of weaker perennials without annuals and at less than 10% basal cover. Ward 20 (Nothintsila), 22 (Welese) and 23 (Mgojweni) had relatively higher ($\pm 10\%$) occurs of sedges, forbs and karroid species and these plants were classified as varied in terms of their perenniality.

The wards that are dominated by perennial grass species with lower percentage of bare patches demonstrate stronger vegetation persistence character, which indicates stronger soil protection against soil erosion. Grasses vary considerably in their grazing value, or the quality and quantity of the material produced for grazing. Some grasses such as *Themeda triandra* are preferred by animals because of their palatability. Other plants are not acceptable to grazers due to low palatability, example of these grasses include *Cymbopogon excavatus*.

The grazing value of grasses is influenced by among other factors productivity (leafiness), palatability, nutritional value (availability of nutrients), growth vigour (ability for quick re-growth), digestibility (fibre content) and habitat preference. Therefore, although some wards at Nyandeni Municipality are dominated by perennial grass species and perceived to have higher ecological status, it is important to note that other perennial species have low grazing value and their potential to support livestock production is low. Grasses with low grazing value include *Aristida junsiformis*,

Cymbopogon excavatus, *C. marginatus*, *C. plurinodis*, *Elionurus muticus*, *Microchloa caffra*, *Miscanthus capensis* and *Sporobolus africanus*.

Majority of the wards have grasses with low grazing value, the average of this value across the wards was 36.1%. The wards with grasses that have relatively high grazing value (>20%) were Ward 22 [Welese (20.6%)], Ward 23 [Mgojweni (21.5%)], Ward 30 [Ndungunyeni (23.8%)] and Ward 11 [Elukhanyisweni (27.1%)]. Ward 13 [Ndidimeni (3.5%)] had the lowest percentage of grasses with high grazing value.

There were some wards that displayed the higher percentage (>40%) of species composition for grass species with average grazing. These include Ward 29 [Enjwezini (46.4%)], Ward 8 [Mdlankomo (48.2)] and Ward 3 [Mhlanganisweni (52.3)]. Ward AA (Katini) had the lowest percentage (5.6%) of grasses with average grazing value. Ndidimeni (Ward 13) further have higher percentage (19.8%) of karoo species such as *Senecio pterophorus*, *Felicia filifolia*, *chrisocoma ciliata* and *Hermannia parviflora* whose grazing value is considered none because of low preference by animals. Nothintsila (Ward 20) and Mgojweni (Ward 23) have forbs (>10%) and the grazing value of these forbs varies with forbs species and with seasons.

3.2.3. Successional trends and vegetation reaction to different grazing intensities

Plant succession is the progressive succession of plant communities, thus, when disturbance occurs in an area, the area becomes colonised by new, better-adapted plant community. The new community improves the growth conditions, and a plant community that is better adapted to new growth conditions replaces the existing plant

community. This progressive succession of plant communities continues until the climax community has been established.

When the succession is disturbed once more the will revert to the initial stage, thus the pioneer stage. The stages of succession at which grasses were at Nyandeni Municipality were on pioneer, sub-climax and climax species with average percentages of 10.5%, 27.7%, and 37.4% for each respectively across the municipality. The highest percentages (>45%) of climax species were recorded at Ward 6 [Ntsonyini (49.1%)], Ward 13 [Ndindimeni (49%)], Ward 20 [Nothintsila (50.6%)], Ward 17 [Emampondomiseni (57.6%)], Ward 9 [Mgqwangi (64.9%)] and Ward AA [Katini (67%)] (Table 3.4).

Climax species are strong perennial plants that are adapted to normal growth conditions and will grow in an area as long as the same conditions prevail. Climax species offer excellent protection against soil erosion and most of them occur in areas with a mild to high rainfall and are usually robust tufted grasses. They are particularly prone to increase in climax vegetation when conditions become “too good”. Thus, when grazing is reduced and a high rainfall is experienced over a few consecutive seasons.

The large numbers of species recorded in this work were climax species. These include *Andropogon amplexans*, *Aristida junciformis*, *Bracharia serrata*, *Cymbopogon excavatus*, *C. marginatus*, *C. plurinodis*, *Digitaria eriantha*, *Elionurus muticus*, *Hapachloa falx*, *Hypperrhenia hirta*, *Melica decumbens*, *Miscanthus capensis*, *Setaria sphacelata*, *Sporobolus fimbriatus*, *Themeda triandra* and *Tristachya leucothrix* and

Panicum ecklonii. It is fundamental to mention that although some grasses are classified as climax species they are not good for forage productivity, thus they have low grazing value.

The wards that are reported in this work to have higher percentages for climax species, these species have low forage value. They species are distributed within Ward 6 [*Aristida junciformis* (11.2%) and *Cymbopogon excavates* (11.2%)], Ward 9 [*Cymbopogon marginatus* (35.9%), and *Hypperrhenia hirta* (16%)], Ward 13 [*Hypperrhenia hirta* (18%)], Ward 17 [*Aristida junciformis* (25.8%) and *Cymbopogon marginatus* (20.5%)], Ward 20 [*Aristida junciformis* (17.5%) and *Miscanthus capensis* (12%)] and Ward AA- Katini [*Aristida junciformis* (48.1%)]

Grass species reacts to grazing by either becoming more (increase in number) or becoming less (decrease in number). The ecological status of grasses refers to the grouping of grasses on the bases of their reaction to different levels of grazing. Majority (>40%) of the grass species reported at Ward 4, 6, 7, 9, 11, 13, 15, 17 and AA are classified as increaser III species. Increaser III grasses are commonly found in overgrazed rangelands, these are usually unpalatable, dense climax grasses such as *Aristida junciformis*, *Cymbopogon excavates*, *C. marginatus*, *C. plurinodis*, *Elionurus muticus*, *Melica decumbens*, *Aristida congesta*, *Cynodon dactylon*, *Melinis repens*, *Microchloa caffra* and *Sporobolus africanus*. These grasses constitute on average 37.3% of the total species at the Municipality.

Increaser III grasses are the strong competitors and increase because the palatable grasses have become weakened by through overgrazing. The higher level of

occurrence of these species signifies selective grazing. It normally occurs as result of grazing with few animals on the larger open grazing area where the animals can always graze selectively the species that they prefer. The higher percentage of increaser II species was recorded at Ward 10 [Sbangweni (41.6%)] and 29 [Enjwezini (52.5%)].

Increaser II species are also abundant in an over grazed area. These grasses increase due to the disturbance effect of overgrazing and include mostly pioneer and sub-climax species such as *Eragrostis capensis*, *E. chloromelus*, *E. curvula*, *E. lehmanniana*, *E. plana*, *E. superba* and *Heteropogon contortus*. Their advantage over preferred grasses is that they produce large number of viable seeds and therefore, have larger ability to recruit new plants from germination of seeds on the exposed ground. The dominance of these grass species in these wards indicates the degree of grazing mismanagement.

These grasses constitute on average 24.3% of herbaceous vegetation coming second after increaser III with average of 37.3%. Increaser I species constitute 13.5% and the list are decreaser species with an average of 5.2% of the herbaceous vegetation at the municipality. Increaser I grasses are abundant in underutilised rangeland; these grasses are usually unpalatable, robust climax species that can grow without any defoliation. In this work, there were two major increaser I species recoded mainly at Ward 8 [*Hypperrhenia hirta* (28.8%)] and Ward 18 [*Miscanthus capensis* (24.2%)]. Decreaser grasses are abundant on the rangeland that is in good condition. However, they decrease in number when the rangeland is over utilized or underutilised. These grasses are palatable climax grasses and they include *Themeda triandra*, *Digitaria*

eriantha, *Bracharia serrata*, *Andropogon amplexans*, *Panicum ecklonii* and *Setaria sphacelata*. Decreaser species were recorded at an abundance of 16% for both Ward 20 (Nothintila) and 30 (Ndungunyeni).

3.2.4. Rangeland condition and vegetation types for Nyandeni Local

Municipality

Most of the grass species across the vegetation types are perennial with an average of 73.8% of occurrence. The percentage bare patches range from 10% at Eastern Valley Bushveld to 14.7% at Mthatha Moist Grassland. In general, the occurrence of annual grasses could be negligible and this indicates that in terms of life cycle vegetation distribution has stronger persistence, which implies stronger and sustainable soil protection against soil erosion.

Based on plant succession, Eastern Valley Bushveld and Ngongony veld are composed of species (>40%) that represent climax vegetation (Table 3.18). Sub-climax species contribution across the vegetation types ranged at 24% for Ngongony veld and 32.7% for Transkei Coastal Belt, whilst Bhisho Thornveld, Eastern Valley Bushveld and Mthatha Moist Grassland have the common figure of 29%. The implication is that the vegetation at Nyandeni Municipality lies between sub-climax and climax succession stages. Although this assertion does not indicate much in terms of the strength of these areas to sustain grazing, it however, gives an indication that the area has moved beyond the pioneer stages, which implies the advancement of vegetation. The species that are at the climax stage of succession are strong perennial plants that are adapted to normal, optimal growth conditions and will continue to dominate the ecosystem as long the growth conditions are maintained. Climax grasses are excellent in protecting soil against soil erosion.

3.2.5. Intervention proposals/Recommendations

Rangelands in Nyandeni Municipality are administered communally and they provide services such as maintenance of stable and productive soils, delivery of clean water and sustaining plants, animals, and other organisms that support the livelihoods and, aesthetic and cultural values of people. Therefore, they have both the economic and ecological value and based on the loss of these values such areas are threatened by land degradation. Therefore, an assessment of land degradation characteristics is central. In order to improve rangeland utilisation and productivity, there are number of possible interventions. These interventions are generally based on the control of frequency and intensity of grazing of livestock.

(i) Control of livestock movement

In order to make efficient use of rangelands, one of the fundamental factors to consider is the ability to control livestock movement. This could be through either social or physical fencing that will restrict access of animals to other areas unless they are permitted. Physical fencing infrastructure requires high financial capital for both installation and maintenance to delineate the boundaries and divide camps as well as development of drinking points. Social fencing requires high standards of institutionalisation which could further be characterised by strong individual and/or community responsibility. These will consider provision of livestock headers or rangers responsible to keep animals within the demarcated areas and the decision should always be communal. The key to the provision of social and/or physical livestock movement control mechanisms is that they should provide the ability to grazing rangelands in rotation that will provide period resting of grazing areas. Therefore, for

Nyandeni based on the fact that majority of areas are dominated by increaser III species we recommend the use of:

(a) High utilisation grazing and/or ultra-high intensive grazing

There is a need for the development of grazing programme in order to effectively control the dominance of increaser III species (*Cymbopogon maginators*, *Aristida junciformis*, *Hyperhenia Hirta*, *Miscanthus capensis* etc). The use of the high utilisation rotational grazing would be useful. However, this would be achievable with fencing infrastructure.

(ii) Objective use of fire (controlled fire)

Fire has been used successfully for years in rangelands and it has been proven to be one of the useful mechanisms in controlling unwanted species and moribund in rangelands. However, there should be an establishment of fire regime that will incorporate frequency, season of burning, intensity and type of fire to use.

(iii) Grazing practices

Furthermore, understanding of the innate properties of rangelands is very important in determining grazing strategy. That brings the elements of carrying capacity of the rangelands, which varies from one vegetation type to another as influenced by climate and edaphic features. Carrying capacity is complicated by the fact that both forage production and animal intake are dynamic factors that vary with ecological site, topography, time of sampling, and plant species composition. The diets of grazing animals also vary according to animal nutritive requirements and the unique dietary preferences of species, breeds, and individuals. Therefore, carrying capacity

estimates should be treated as an initial starting point for the establishment of the management the grazing unit that will almost certainly be revised with continued monitoring and current environmental conditions. Determination and allotment of stoking rates is also an important aspect that should be considered and it depends on the carrying capacity of an area.

The intensity and preference of animals vary along the topographic continuum, between plant species and between animal species. Thus, animal select species, plant parts and areas on which to graze. Cattle are bulk grazers and they can graze the grass that is tall enough to hold with a tongue and pull, therefore, they cannot graze to the bottom. Sheep on the other hand are concentrate grazers and are selective, thus they can grazing to the bottom of the grazing materials. Goats are generally browsers and prefer the areas with bush plant species. It is important however to note that mohair goats normally get stack on the bushes and therefore not recommended on tall bushes. It is therefore, fundamental to balance the livestock rations so that the efficiency of utilisation is achieved.

3.3. SOIL SURVEY

3.3.1. Results and discussion

Soil analysis results are shown in Table 2. The soils in NLM are strongly acid. The pH varies from 4.1 in Bhukwini to 4.8 in Buting Ville. Organic matter is low especially in Buting Ville, Ncorana and Mtyu. In these wards organic matter is less than 1%. A few wards such as Libode, Ngxokweni, Bhukwini and eNtshingeni have higher organic matter content about 3%. Macro nutrients especially Potassium is low. Iron and manganese content is high.

Soil pH affects plant nutrient availability. Decreasing soil pH directly increases the solubility of micro nutrients. The availability of macro nutrients tend to decrease with decreasing pH and increase with increasing pH (Ujwala, 2010). The soil pH values of the soils ranged from pH of 4.1 to 4.8 meaning that the soils are strongly acidic. Since the soils are acidic there is poor availability of base cations, Na^+ , Ca^{2+} , K^+ and Mg^{2+} . This is because base cations exchange complex is dominated by Al^{3+} and/or H^+ cations.

In contrast when soils are acidic solubility of iron, copper, manganese and zinc elements is increased, and hence they are more available in acid soils. Furthermore, strongly acid soils reduce phosphorus availability. According to Sahai (1990), availability of phosphorus is at its highest when the reaction is between 6.5 and 7.5. In strongly acid soils (pH 5.0 or less) iron, aluminium, manganese and other bases are present in a soluble state and in more quantities. These bases especially iron and

aluminium react with phosphates ions to form insoluble phosphates. There the soils are likely to fix phosphorus making it unavailable for plant uptake.

Generally low pH causes lower CEC, because the higher concentration of H⁺ ions in solution will neutralize the negative charges on clays and organic matter (Havlin *et al.*, 1998). CEC is higher in soils with high amounts of clay and organic matter. The CEC of the soil was ranging from 1.28 to 1.48 meq/100g. This meant that the CEC of these soils was very low. Organic matter, like clay, has a high surface area and hence high CEC, making it an excellent supplier of nutrients to plants. However, the CEC of organic matter drops substantially as pH decreases. The range of SOM was from 0.22 to 3.80 %. This meant that the SOM of these soils was very low to low.

Table 2: Soil analysis results

Sample N	Lab No		soil pH		mg/kg			meq/100g	mg/kg			ppm	%	
		H2O	KCl	Na	K	Ca	Mg	CEC	Fe	Mn	Cu	Zn	P	SOM
1	libode	6.31	4.7	131.3	Trace	1241.54	337.84	1.47	71.26	54.15	Trace	8.21	Trace	3.25
2	Mdlankomo	6.33	4.5	47.4	Trace	155.75	60.66	1.47	35.98	1.93	Trace	0.01	Trace	1.12
3	Mdlankomo B	6.38	4.6	142.7	Trace	361.08	124.51	1.28	239.05	62.76	Trace	5.21	Trace	1.29
4	Mdlankomo C	6.52	4.5	23.9	Trace	25.04	10.12	1.48	212.02	99.14	Trace	0.06	Trace	0.90
5	Misty mount	6.27	4.3	187.9	Trace	468.42	191.41	1.49	632.96	8.48	Trace	0.62	Trace	2.94
6	Ncorana	6.71	4.7	116.3	Trace	98.99	33.05	1.47	172.66	140.55	Trace	0.07	Trace	1.07
7	Buting ville	6.59	4.8	132.7	Trace	325.94	100.96	1.47	172.05	126.53	Trace	0.36	Trace	0.98
8	Buting ville C	6.09	4.8	87.9	Trace	0.08	0.00	1.33	88.49	68.20	Trace	0.00	Trace	0.22
9	Ngxokweni	6.11	4.1	51.9	Trace	97.57	62.94	1.47	167.07	0.00	Trace	1.93	Trace	3.02
10	Bhukwini	6.08	4.1	10.1	Trace	10.26	5.15	1.47	455.66	0.00	Trace	0.11	Trace	3.37
11	eNtshingeni	6.19	4.2	183.9	32.4	1512.52	636.81	1.47	642.35	102.08	Trace	1.85	Trace	3.16
12	eNtshingeni C	6.09	4.2	3.0	Trace	52.73	19.40	1.47	378.93	52.75	Trace	5.92	Trace	3.80

The soil is strongly acidic with a very low organic matter as indicated in Table 2.

3.3.2. Intervention proposals/Recommendations

Results indicate strong acidity conditions which may cause aluminium and manganese toxicities. The soils also indicate low CEC and low levels of macro nutrients. We therefore conclude that under these conditions crop response will be poor. Strategic soil management and crop selection becomes mandatory.

Liming is highly recommended to reduce acidity conditions

Selection of acid tolerant crops is also critical

Fertilisation with both organic and inorganic fertilizers improves the nutrient status of the soil.

The following are practical interventions on crop production

(a) Vegetables:

- (i) Radishes -these fast-growing root crops thrive in soil with a pH between 4.5 and 5.5.
- (ii) Sweet Potatoes- these flavourful tubers are loaded with vitamin A. They grow best in soil with a pH between 4.5 and 5.5.
- (iii) Parsley- Parsley is a fast-growing annual herb that tolerates soil pH between 5.5 and 6.5.
- (iv) Peppers- Peppers, including bell peppers and chili peppers, prefer a soil pH between 5.5 and 6.5.
- (iv) Tomatoes- they have similar growing requirements as peppers
- (v) Potatoes. Potatoes prefer a soil pH between 4.8 and 5.5.

- (vi) Beans -they grow best in full sun in soil with a pH between 5.5 and 7.0.
- (vii) Broccoli - it prefers a soil pH between 5.5 and 7.0.
- (viii) Cabbage- it also tolerates a soil pH between 5.5 and 7.0.
- (ix) Carrots- carrots need soil with a pH between 5.5 and 7.0.
- (x) Cucumbers- Cucumbers grow best in soil with a pH between 5.5 and 7.0.
- (xi) Onions- Onions tolerate soil pH as low as 5.5
- (xii) Squash- prefer a soil pH between 5.5 and 7.0.
- (xiii) Sweet corn-sweet corn tolerates a soil pH between 5.5 and 7.0.
- (xiv) Tomatoes- they need soil with a pH between 5.5 and 7.0.
- (xv) Turnips- . Turnips prefer soil with a pH between 5.5 and 7.0.

(b) Fruits

- (i) Blueberries- Blueberry prefer a soil pH between 4.2 and 5.
- (ii) Currants- They need a soil pH between 5.5 and 6.5.
- (iii) Elderberries- The plants thrive in soil with a pH between 5.5 and 6.5.
- (iv) Gooseberries- they a soil pH between 5.5 and 6.5.
- (v) Apples- They tolerate a soil pH between 5.5 to 6.5.
- (vi) Grapes- they do well in a soil with a pH between 5.5 to 6.5.

(vii) Raspberries- they tolerate a soil pH between 5.5 and 7.0.

(viii) Strawberries-they tolerate a wide range of soil pH – 5.5 to 6.5.

Strategic management of Acid soils.

- Monitor Subsurface pH. On heavy soils, monitor the 10-20 cm soil layer. On lighter textured soils include the 20-30 cm layer. Remember that the surface pH needs to be above 5.5.
- Begin a Liming Program Early. Spreading lime remains the most effective remedy for soil acidity. More than one application of 1.0-1.5 t/ha of lime is likely to be required over a number of years.
- Reduce the level of Calcium removal. Adopt less acidifying rotations (e.g. less legumes) and less hay cutting -regular cutting of Lucerne pastures increases acidification.
- Retain crop stubble; feed stock on the same paddock from which hay was cut
- Reduce Leaching of Nitrogen. Use split applications of fertiliser; use lower rates of less acidifying fertilisers; avoid acidifying fertilisers such as mono ammonium phosphate or sulphate of ammonia; sow crops early; and include perennial rather than annual pastures.
- Encourage maximum growth. Sow crops as soon as possible after the first rain: apply adequate nutrients; reduce long fallow; and grow deep-rooted summer-growing perennials.

CHAPTER 4

4. STRATEGIC INTERVENTION

4.1. Introduction

Nyandeni rural community according to the situational analysis survey conducted by University of Fort Hare in partnership with Nyandeni Municipality can be broadly summarised as a community largely surviving as beneficiaries of insufficient and unsustainable social grant aid from external sources with minor contributions from local livelihoods sources. On average, household heads are educated up to grade 6, unemployed and always at home defined in a married marital status.

Soil survey results suggest strong acidity conditions characterised by low organic matter and CEC. As a result, crop response is expected to be poor due to toxicity and low levels of macro nutrients. Vegetation distribution displays stronger perennality with advancement in plant succession. However, the grazing value ranges from poor to average with grass ecological status ranging from increaser I to increaser III.

With that background, this section presents a summarised framework for a strategic intervention pathway that could be adopted to address key agricultural livelihoods challenges faced by Nyandeni rural communities.

General interventions

This section presents a summary of potential “on-farm” and “non-farm” livelihoods strategic intervention projects per ward/village as inspired by available vegetation and soils. Table 3 presents a summary of potential “on-farm” and “non-farm” livelihoods

projects that could be introduced in these wards for purposes of improving livelihoods. Bisho Thornveld was dominant in the following ward 3 (Mhlanganisweni village), ward 7 (Kwandanya village), ward 8 (Mdlankomo village), ward 13 (Ndidimeni village) and ward 29 (Enjwezini village). Soil survey results from these wards reveal acidic conditions with a very low cat-ion exchange capacity.

Table 3: Potential “on-farm” and “non-farm” livelihoods projects under Bisho Thornveld conditions

Bhisho Thornveld						
Predominant Vegetation Type	Soils Type	Ward	Village	Range of possible projects		
				On-Farm		Off-Farm
				Livestock	Crops	Flora & Fauna
Bhisho Thornveld	Acidic & low in CEC	3	Mhlanganisweni	1. Semi-intensive and extensive (Dairy, Beef, Goats)	Forage cereals Vegetables Berries and fruits Shrubs and fruits	Biodiversity and wildlife (grazers and browsers)
		7	Kwandanya			
		8	Mdlankomo	2. Intensive livestock production (a) Broiler production (b) Piggery		
		13	Ndidimeni			
		29	Enjwezini			

With that background, the following on-farm and off-farm livelihoods intervention projects are recommended:

On-farm livestock enterprises

Because of the fair to good grazing value noted in these wards introducing semi-intensive to extensive dairy, beef and goat production could be technically possible. Other livestock enterprises that could be introduced in these wards include broiler and piggery production.

Crop enterprises

For purposes of complementing livestock enterprises production of forage cereals in these wards is also high recommended given the synergies that exist between the two enterprises and ability of forage cereals to tolerate acidic soil conditions generic in

these wards. Other crop enterprises that could be commercially introduced in these wards include; vegetables, berries and fruits and shrubs.

Off-farm enterprises

The following off-farm enterprises are also possible in these wards; biodiversity and wildlife management for both grazers and browsers wild species. However, further studies may be required for this section since the situational analysis did not cover off-farm natural resources livelihoods opportunities.

Eastern Valley Bushveld Wards

Table 4: Potential “on-farm” and “non-farm” livelihoods projects under Eastern Valley Bushveld conditions

Predominant Vegetation Type	Soils Type	Ward	Village	Range of possible projects		
				On-Farm		Off-Farm
				Livestock	Crops	Flora & Fauna
Eastern valley Bushveld	Acidic & low in CEC	6	Ntsonyini	1. Extensive livestock (a) Goats 2. Intensive livestock production (a) Broiler production (b) Piggery	Forage cereals Vegetables Berries and fruits Shrubs and fruits	Bee-farming Bio-conservation and wildlife (Grazers and browsers)
		20	Nothintsila			
		22	Welese			
		30	Ndungunyeni			

On-farm livestock enterprises

Extensive livestock production is recommended in these wards more specifically goat production. Other livestock enterprises that could be introduced in these wards include broiler and piggery production.

Crop enterprises

Crop enterprises that could be commercially introduced in these wards include; vegetables, berries and fruits and shrubs.

Off-farm enterprises

The following off-farm enterprises are also possible in these wards; beekeeping, bio-conservation and wildlife management for both grazers and browsers wild species. However, further studies may be required for this section since the situational analysis did not cover off-farm natural resources livelihoods opportunities.

Mtatha Moist Grassland Wards

Table 5: Potential “on-farm” and “non-farm” livelihoods projects under Mtatha Moist Grassland conditions

Predominant Vegetation Type	Soils Type	Ward	Village	Range of possible projects		
				On-Farm		Off-Farm
				Livestock	Crops	Flora & Fauna
Mthatha Moist Grassland	Acidic & low in CEC	1	Ngcolorha	(1) Semi-intensive and extensive (Dairy, Beef, Sheep)	Forage cereals Vegetables Berries and fruits Shrubs and fruits	Bio-conservation and wildlife (Grazers)
		3	Mhlanganisweni			
		4	Marubeni			
		8	Mdlankomo	(2) Intensive livestock production (a) Broiler production (b) Piggery		
		9	Mgqwanngi			
		10	Sbangweni			
		11	Elukhanyisweni			
		12	Corana			
		29	Enjwezini			
31	Luthubeni					

On-farm livestock enterprises

Semi-intensive and extensive livestock production is recommended in these wards focusing on commercial dairy, beef and sheep production. Other livestock enterprises that could be introduced in these wards include broiler and piggery production.

Crop enterprises

For purposes of complementing livestock enterprises production of forage cereals in these wards is also high recommended. Other crop enterprises that could be commercially introduced in these wards include; vegetables, berries and fruits and shrubs.

Off-farm enterprises

The following off-farm enterprises are also possible in these wards; bio-conservation and wildlife management for grazers. However, further studies may be required for this section since the situational analysis did not cover off-farm natural resources livelihoods opportunities.

Ngongoni Veld Wards

Table 6: Potential “on-farm” and “non-farm” livelihoods projects under Ngongoni Veld conditions

Predominant Vegetation Type	Soils Type	Ward	Village	Range of possible projects		
				On-Farm		Off-Farm
				Livestock	Crops	Flora & Fauna
Ngongoni Veld	Acidic & low in CEC	6	Ntsonyini	1. Semi-intensive and extensive (Dairy, Beef, Sheep) 2. Intensive livestock production (a) Broiler production (b) Piggery	Forage cereals Vegetables Berries and fruits Shrubs and fruits	Bio-conservation and wildlife (Grazers)
		7	Kwandanya			
		13	Ndidimeni			
		15	Mtyu			
		17	Emampondomiseni			
		18	Bukwini			
		23	Mgojweni			
		30	Ndungunyeneni			
		AA	Katini			

On-farm livestock enterprises

Semi-intensive and extensive livestock production is recommended in these wards focusing on commercial dairy, beef and sheep production. Other livestock enterprises that could be introduced in these wards include broiler and piggery production.

Crop enterprises

For purposes of complementing livestock enterprises and mitigating acidic soil conditions commercial forage cereal production in these wards is also highly recommended. Other crop enterprises that could be commercially introduced in these wards include; vegetables, berries and fruits and shrubs.

Off-farm enterprises

The following off-farm enterprises are also possible in these wards; bio-conservation and wildlife management for grazers. However, further studies may be required for this section since the situational analysis did not cover off-farm natural resources livelihoods opportunities.

Transkei Coastal Belt Wards

Table 7: Potential “on-farm” and “non-farm” livelihoods projects under Transkei Coastal Belt conditions

Predominant Vegetation Type	Soils Type	Ward	Village	Range of possible projects		
				On-Farm		Off-Farm
				Livestock	Crops	Flora & Fauna
Transkei Coastal Belt	Acidic & low in CEC	6	Ntsonyini		Vegetables	Bee-farming Bio-conservation and wildlife (Grazers and browsers)
		20	Nothintsila		Berries and fruits Shrubs and fruits	

Crop enterprises

The following crop enterprises can be introduced in these wards; commercial vegetable, berries and fruit production.

Off-farm enterprises

The following off-farm enterprises are also possible in these wards; bee-keeping, bio-conservation and wildlife management for grazers and browsers. However, further

studies may be required for this section since the situational analysis did not cover off-farm natural resources livelihoods opportunities. For beekeeping in these wards wind speed and availability of fresh natural water sources is critical.

4.2. Sector specific interventions

This section presents a brief concept summary of specific intervention projects that could be developed into business plans for funding and implementation.

Domesticated Livestock

Nyandeni Local Municipality is characterised by various climatic zones ranging from tropical to temperate. This is mainly because of the proximity of some wards to the coastal line and inland characteristics of some wards further away from the coast. Effectively, the municipality has a wide range of climatic variation. The municipality is therefore mostly located within the savanna biome with grassland and Albany Coastal Forest biomes. Mthatha Moist grassland, Ngongoni veld and Bhisho Thornveld generally have higher agricultural potential, whilst on the other hand Transkei Coastal Belt, Southern Moist Belt Forest and Scarp Forest have higher biodiversity conservation potential, and Eastern Valley Bushveld could be more intermediate between agricultural, biodiversity and wildlife conservation potential.

Semi-intensive and extensive livestock production

Custom Feeding

Based on the situational analysis conducted, rangeland condition is generally poor due the dominance of increaser III grass species in the majority of the wards. Animal population in the whole municipality is estimated at 104 504 (as at 2011 census). The largest number of cattle come from Ngqeleni (59%) followed by Libode (41%). With reference to shoats, in 2011, the estimated population was 274 522 (sheep) and 111 306 (goats). While there is a large number of livestock, the market is not readily

available in favourable conditions for the farmers. This is mainly because of missing marketing channels and poor livestock breeds.

Establishment of the Nyandeni Custom Feeding (NCF) is therefore proposed to address production and marketing challenges faced by farmers as they try to market their livestock.

Key components of the project

1. Capacity building (farmers and extension officers)
2. Establishment of a breeding program for the municipality
3. Establishment of a grazing management and feeding program
4. Establishment of an animal health management program
5. Establishment of a marketing program within and outside the municipality
6. Development of communal custom feeding

Establishment (construction of handling facilities and equipment) and running (feeds, labour, transportation, vet services etc) of the custom feeding program could get to about R3, 000, 000.00 in the first year and will go down to R1, 000, 000.00 in the subsequent years and could get further down if feed items such as hay are produced within the municipality. Table 8 presents an estimated budget summary for this project.

Table 8: Estimated budget summary for a custom feeding program business plan

Items	Cost (R)
1. Capacity building to farmers and extension officers on beef production	
1.1. Farmers (5 days)	98 000.00
1.2. Extension officers (5 days)	98 000.00
2. Establishment of breeding program for the municipality	50 000.00
3. Establishment of grazing management and feeding program	50 000.00
4. Establishment of animal health management program	50 000.00
5. Establishment of marketing program within and outside the municipality	100 000.00
6. Development of a business plan	300 000.00
Total cost	746 000.00

Sheep production

The potential of the municipality in small livestock production (sheep and goats) varies between the wards. This is mainly influenced by vegetation types on which the wards are located. Sheep production could be divided into two production systems namely; (a) mutton production and (b) wool production. For wool production, there is a lower potential. Although the wool sheep can survive in most of these areas there is higher potential for contamination of wool by seeds of different weeds and grasses which affects its quality. However, in Mthatha Moist Grassland (Wards – 1, 3, 4, 8, 9, 10, 11, 12, 29 and 31), wool sheep can survive and produce high quality wool. Mutton sheep can be generally suitable in almost all the wards.

Goat production

Goats can be kept for production of mohair, cashmere and chevon (meat). However, the municipality has a lower potential for fibre production because of contamination. If required this enterprise can only be supported by the Mthatha Moist Grassland vegetation type. In South Africa, cashmere is produced mainly from indigenous goats. These goats perform successfully under Eastern valley bushveld (Ward - 6, 20, 22 and 30) and Bhisho Thornveld (Ward - 3, 7, 8, 13 and 29). The same wards can be suitable for chevon production as well.

Nyandeni dairy project

Dairy production systems could be divided into two namely; (a) total mixed ration (TMR) and (b) pasture based systems. TMR is more capital intensive due to the fact that it deals with feeding animals with a complete formulated ration. Therefore, it requires the dairy genetic material (breeds) with higher feed conversion efficiency,

which requires high feed quality. Such animals will further require high level of health management to sustain their production level. On the other hand, pasture based dairy requires animals with walking ability and animals which can digest grass effectively. There are a number of reasons why we recommend dairy for Nyandeni municipality.

These include the fact that NLM is located at a higher rainfall area that can support production of cultivated pastures on irrigation or on dry land. The biggest challenge is perishability and distance to market (PE and East London). Should the municipality consider dairy production as the business entity to pursue, the smallest break even scale to target should be a 500 dairy cow unit.

Phase II of the Nyandeni Local Municipality (NLM) – UFH collaboration agreement will address the following with regard to establishment a dairy project.

1. Capacity building (farmers and extension officers)
2. Establishment of a grazing management and feeding program
3. Establishment of a marketing program within and outside the municipality
4. Development of a business plan

Establishment (construction of handling facilities and equipment) and running (feeds, labour, transportation, vet services etc) of the dairy could get to about R20, 000, 000.00 in the first year and will go down to R14, 000, 000.00 in the subsequent years and could get further down if feed items such as hay are produced within the municipality. Table 9 presents a summary of the estimated costs of developing a business plan for a dairy project.

Table 9: Estimated budget for developing a business plan

Item	Cost
1. Capacity building to farmers and extension officers on dairy production	98 000.00
2. Establishment of grazing management and feeding management program	100 000.00
3. Establishment of marketing program within and outside the municipality	80 000.00
4. Development of a business plan	500 000.00
Total	778 000.00

Intensive animal production

Nyandeni Chicken

Broiler production is the raising or keeping of chickens (broilers) primarily for meat production. The reasons why we recommend broiler production for Nyandeni Municipality include the fact that all the wards or households can participate in broiler production, the broiler production does not require land with any specific soil properties, broiler production has got high production turnover, thus, within 6 weeks the production cycle is completed and therefore, there can be number of cycles in a year. It is important to note that any mechanisms that are meant to reduce cost of production while not compromising production principles will enhance the profitability of the broiler production. Highest cost of production is the cost of feeding (75 – 80%), therefore, if the feeds are manufactured within Nyandeni that will reduce the cost of production.

Phase II of the Nyandeni Local Municipality – UFH collaboration agreement will address the following with regard to establishment of broiler production.

1. Capacity building (farmers and extension officers)
2. Establishment of Nyandeni Chicken Production Model (NCP Model) that in cooperates central production with wards as satellites feeding to the central production

3. Establishment of a marketing program within and outside the municipality
4. Development of a business plan

The semi-centralised to centralised supply chain management within the municipality could aid in reducing the costs of broiler production. Thus, production of yellow maize within the municipality could offset costs of production and optimise the profits. Furthermore, there could be more opportunities to establish other business avenues such as establishing abattoirs and supply chicken to Nyandeni butcheries, supermarkets and to the nearer towns such as Mthatha and its surrounding towns.

Establishment (construction of handling facilities such chicken houses, hatchery, abattoir and equipment imbedded in) and running (feeds, labour, transportation, vet services etc) of the central broiler production entity (45 000 chicken for slaughter in every 2 weeks) could cost R15 000 000.00 in the first year and will go down to R10 000 000.00 (can run itself). Table 10 presents an estimated budget summary of the cost implications of developing a broiler business plan.

Table 10: Cost of facilitation for establishment of broiler production business plan

Item	Cost
1. Capacity building to farmers and extension officers on broiler production	
1.1. Farmers	98 000.00
1.2. Extension officers	98 000.00
2. Establishment of Nyandeni Chicken Production Model (NCP Model)	100 000.00
3. Establishment of marketing program within and outside the municipality	90 000.00
4. Development of a business plan	400 000.00
Total	786 000.00

Nyandeni Piggery

Pig production is one of the enterprises, which has been marginalised for years especially in South Africa. This could be due to the little preference attached with the effects of religion. However, there are some areas where bacon, pork and heavy hog are preferred especially with health issues related to the red meat. In addition, pork is cheaper to buy compared to red meat (beef). Almost all the wards at Nyandeni Municipality can produce pigs, however, the level of preference for farmers to produce pigs or at least prefer it as food have not yet been established. There are a number of reasons why pig production is recommended for Nyandeni Municipality, and these include but not limited to:

- The capital invested in pig production can be realised and returned in relatively a short period.
- Pigs can utilise a wide variety of feedstuffs such as grains, damaged feeds and garbage and convert them into valuable nutritious meat.
- It takes 6 to 7 months feeding period to raise a weaner pig to a market weight of 90 kg under average feeding and management conditions.
- Pig production is one of the enterprises which grow very fast because a sow can easily produce a litter of 12 to 14 piglets in 114 day gestation period. (That means one sow can farrow 2.4 times or give birth to 27-30 piglets per year).
- In terms of space requirements, unlike other livestock production enterprises, piggery requires a small space with less emphasis on the soil type and fertility status and therefore, could include larger numbers of community members.
- Pigs manure is widely used as fertilizer for agriculture farms and fishponds.

- There is good demand from domestic as well as export market for pig products such as pork, bacon, ham, sausages, lard, etc.

Should the municipality consider pig production as the agricultural business entity, the smallest scale could be the piggery of 500 sow unit. Phase II of the Nyandeni Local Municipality – UFH collaboration agreement will address the following with regard to establishment of a piggery project.

1. Capacity building (farmers and extension officers)
2. Establishment of piggery management program
3. Establishment of marketing program within and outside the municipality
4. Development of a business plan

Establishment (construction of handling facilities and equipment) and running (feeds, labour, transportation, vet services etc) of the pig production entity could cost about R6 000 000.00 in the first year and will go down to R3 000 000.00 in the subsequent years and could get further down if the feed items such as yellow maize and sunflower are produced and feeds are manufactured within the municipality. Table 11 presents a budget estimate for establishment of a piggery project.

Table 11: Budget for developing a piggery project business plan

Items	Cost
1. Capacity building to farmers and extension officers on pig production	
1.1. Farmers	98 000.00
1.2. Extension officers	98 000.00
2. Establishment of piggery management program	80 000.00
3. Establishment of marketing program within and outside the municipality	100 000.00
4. Development of a business plan	500 000.00
Total	876 000.00

Crop interventions

Preliminary assessment of the soils in NLM suggests acidic conditions. Effort should therefore be made to grow acid tolerant crops where possible. Otherwise liming is likely to significantly increase the costs of production. Some of the crops that can tolerate acid conditions are already being grown in the area. In summary, options available include the following crops;

(a) Berries and Fruits

Most fruits prefer acid soil. For example, blueberries grow best at pH 4 to 4.5, cranberries need soil pH between 4.5 and 5.5, and strawberries do best with a pH of 5.5 to 6.5. Apples, pears, and bananas will require soil pH 5.5 to 6.5.

(b) Shrubs and Flowers

Several shrubs and flower species can also tolerate pH around 5.

(c) Vegetables

Most garden vegetables prefer slightly acid soils. The best bet would be potatoes because they do well if soil pH is about 5. Other choices would be tomatoes, carrots, beans, peas and pepper.

(d) Forage cereals

Cereal species of oats, wheat, barley or triticale, have the potential to be an integral part of providing year round feed in a dry-land livestock system. They are tolerant to acid conditions.

In areas where surface fresh water (river, dam etc: ward 19, 20) is available irrigation could be tried. We propose either development of communal (co-operative) irrigation infrastructure or individual home gardens. Either of these two options, it would require strong partnership with established private sector for sustainability. Also as an integral component to various livestock projects proposed above yellow maize, and sunflower production under irrigation would complement the supply chain of these enterprises.

Key components of any irrigation system

- Irrigation systems would require strong capacity building of users and extension officers.
- Strategic marketing plan in line with ready demand
- For small irrigation projects (< 5ha) a budget of R800,000 could be ideal to develop a business plan
- For irrigation projects beyond 5ha a budget of R1,000,000 could be ideal to develop a business plan

Non-farm enterprises

The situational analysis did not capture much on the natural resources of the municipality. To that end, our recommendations are limited to bee-farming based on the veld assessment study covered by the situational analysis. We note that for serious commercial beekeeping issues of temperature, wind speed and availability of fresh water sources are critical.

Bee-farming project

Bee-farming is the art of keeping bees in artificial hives, a proxy habitat for bees that mimic the natural setting for feral bees. Under this surrogate habitat system bees have

been reported to produce large amounts of saleable **honey** and **wax** with minimum input from the farmer. In this concept summary we provide a brief framework for a proposed “community bee-farming and honey processing” business plan.

In terms of location, our recommendations are based on technical natural comparative advantage of various wards mainly inspired by key inputs to the project. Critical for bee-farming from a technical point of view is the availability of (a) forage and (b) permanent water source within the proximity of the apiary unit from the supply side. Market on the other hand is also critical for the success of bee-farming. Thus far, two main vegetation types [(a) Eastern valley Bushveld and (b) Transkei Coastal Belt)] from the municipality can therefore technically support bee-farming from the supply side specifically as source of natural forage.

These vegetation types fully express themselves in the following wards; 6, 20, 22 and 30. Natural water sources are also available from these wards. Need therefore arises to strategically position the apiary closer to such water sources to avoid the flying distance of bees in search of water.

The proposed model shall be as follows;

The project shall have a **common village apiary** with a capacity of housing 2000 Kenyan Top Bar hives. Each household will have 20hives in the **common village apiary**, thus, “1homestead-20hives model”. To boost forage quality and quantity we propose establishment of eucalyptus plantations and other natural flowering vegetation closer to the apiary locations, thus, “1 apiary – 1 plantation model”. Natural flora does not normally flower throughout the year, a significant factor that would

reduce the ability of bees to also have nectar throughout the year. Centrally at ward level, a honey processing plant is proposed managed by a **ward cooperative**. Ideally, village bee-farmers shall deliver their raw honey to the plant for processing and marketing at a commission. This approach will engage village bee-farmers as active participants in the honey value chain. Figure 8 presents the proposed layout.

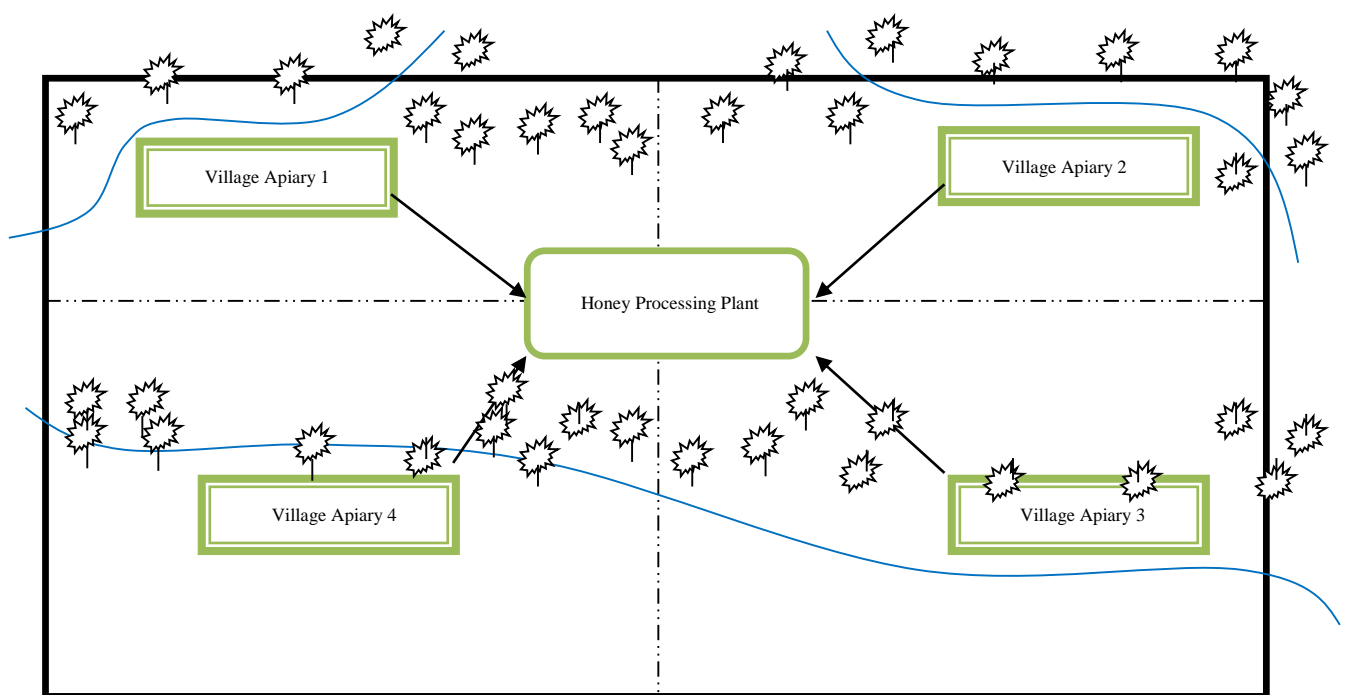


Figure 8: Proposed common village apiaries and a ward honey processing plant.

The expected welfare impact of the project using scenario thinking

Assumptions

- 20 hives per household
- Each hive producing 12kg raw honey in 4 months
- Each household will deliver 240kg to the plant after every 4 months
- At processing the following wax to pure honey ratio is further assumed/kg (3:7)
- 240kg will produce 168kg of pure honey and 72kg of wax

1kg of pure honey has a retail price of R100 and 1kg of wax has a retail price of R150. Gross revenue from 240kg of raw honey from each household in 4 months would be;

- 168kg pure honey X R100 = R16,800 + 72kg wax X R150 = R10,800
- Total gross value = R27,600

Assuming a commission of 10% of gross value is charged (R2,760) by the cooperative for processing and marketing each household will have a gross value of R24,840 in 4 months equivalent to **R6,210** per month.

Key components of the project business plan

- *Capacity development*
 - Selected project participants (bee-farmers)
 - Basic and advanced bee-farming skills
 - Ward cooperative members
 - Commercial honey processing, bottling and packaging
 - Commercial honey marketing
 - Cooperative management and leadership skills
 - Ward extension officers
 - Apiculture refreshers courses for extension
- *Village apiary structure*
 - Technical feasibility (location)
 - Business model
 - Product movement from apiaries to the processing plant
 - Apiary designs
- *The structure of the plantations*
 - Technical feasibility (species selection, location etc)
 - Plantation designs
- *The structure of the honey processing plant*

- Technical feasibility
- Business model
- Marketing strategy
- Plant design
- *Environmental impact assessment of the whole project*
 - Baseline study
 - Predicted impacts and mitigation strategies

Estimated cost implications for developing a beekeeping business plan

1. Capacity development	R200,000
2. Village Apiaries	R150,000
3. Village plantations	R80, 000
4. Ward Honey Processing Plant	R400, 000
5. Environmental Impact Assessment Study (EIA)	R100, 000
Grand Total	R930, 000

CHAPTER 5

5. IMPLEMENTING THE STRATEGIC SECTOR PLAN

5.1. Introduction

The main objective of this chapter is to give guidelines on how the strategic sector plan should be implemented at Municipality level. The guidelines should ensure that all stakeholders, including the communities, farmers, NGOs, and other government departments are effectively and actively involved in developing and implementing the plan. The vision of a prosperous agriculture sector requires partners to have action plans, key performance indicators, service delivery standards, monitoring and evaluation systems and time frames in order to realize the integrated strategic plan. It also requires the Municipality to do things differently, with greater speed and urgency and in partnership with all important stakeholders mentioned above.

It is evident from the strategic framework presented here that the action plan to enhance participation and competitiveness in the agricultural sector requires concerted efforts to ensure the following:

- Proper coordination among the various entities involved in implementation, including within and between the public, private and voluntary sectors
- Goal orientation among all these entities, to ensure that all are focused on achieving universal benefits, rather than merely sectional interests
- Capacity building at all levels, and in the many dimensions, ranging across the spectrum from advanced scientific knowledge to greater participation in project implementation at grassroots

- Sound planning of the implementation process to ensure that projects are started and completed at the right time, and to oversee coordination between the various entities and projects
- A proper sequencing of implementation actions with the necessary support actions (capacity building, institution building, planning, etc.)
- Monitoring of progress to ensure the proper management of the implementation process. This requires special attention to the provision of information and to management information systems as well as installing a monitoring and evaluation system.

5.2. Strategic integrated implementation approach

5.2.1. Sustainable livelihood analysis (SLA) approach

The concept of 'sustainable rural livelihoods' is increasingly central to the debate about rural development, poverty reduction and environmental management. Exploration of the sustainable livelihoods Analysis (SLA) proposed by Scoones (1998) could serve as the bases for strategic implementation Agricultural Sector plan proposed for Nyandeni Local Municipality. The final product of this analysis should provide a realistic understanding of people's strengths (assets or capital endowments) and how they convert these into positive livelihoods impacts. The approach is founded on a belief that people require a range of assets to achieve positive livelihood outcomes (impacts). There is no single category of assets on its own that is sufficient to yield all the varied livelihood outcomes that people seek. This is particularly true for poor people (farmers) whose access to resources tends to be limited. The resource (capital/asset) pentagon lies at the core of the livelihoods framework, "within" the

vulnerability context. The pentagon was developed to enable information about people's (Farmer's) resources to be presented visually, thereby bringing to life important inter-relationships between the various assets.

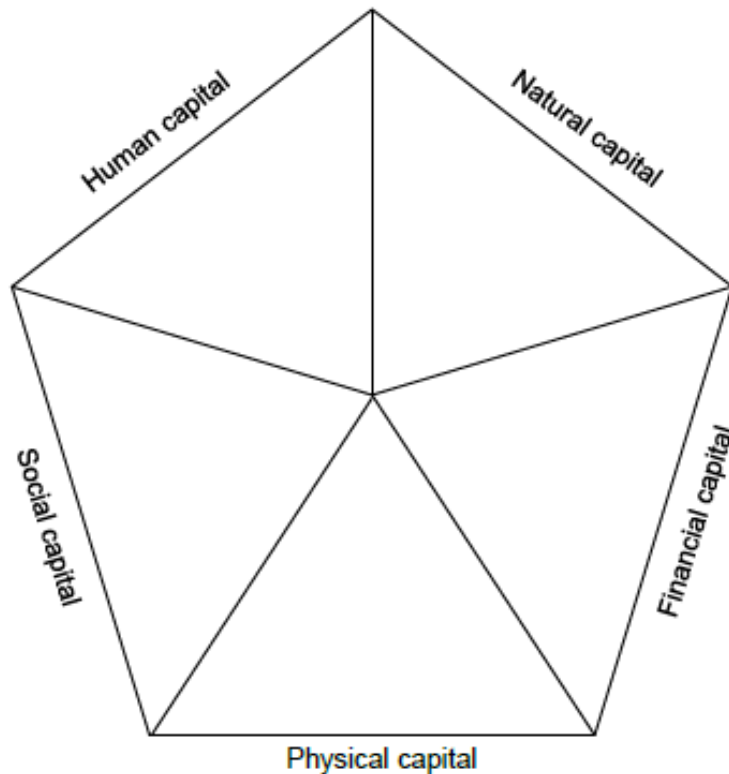


Figure 9: Resource (asset/capital) pentagon on which the core of the livelihoods framework is based

Human capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives. This is a factor of the amount and quality of labour available at the community and it varies according to the community size, skill levels, leadership potential, health status etc. Although it bears an intrinsic value, human capital (resource) is required in order to make use of any of the four other types of resources as indicated on the above diagram. This resource is therefore, necessary to coordinate

the use of all other resources, however, it is not on its own sufficient, for the achievement of positive impact on livelihoods.

Social resource (capital) could be described as social assets upon which people draw in pursuit of their livelihoods objectives. This could be developed through networks and connectedness, either vertical (patron/client) or horizontal (between individuals with shared interests) that increase people's trust and ability to work together and expand their access to wider institutions, such as political, civic bodies, NGO's, public institutions etc. Membership of more formalised groups which often entails adherence to mutually-agreed or commonly accepted rules, norms and sanctions; and the relationships of trust, reciprocity and exchanges that facilitates cooperation, reduce transaction costs and may provide the basis for informal safety nets amongst the farmers.

Natural capital is the term used for the natural resource stocks from which resources flows and services (e.g. nutrient cycling, erosion protection) useful for farm productivity are derived. There is a wide variation in the resources that make up natural capital, from intangible public goods such as the atmosphere and biodiversity to divisible assets used directly for production (land, climate, vegetation, soil, water bodies etc.). Natural capital is very important to those who derive all or part of their livelihoods from resource-based activities (farming, fishing, gathering in forests, mineral extraction, etc.). However, the natural capital is even important to those who do not directly derive their livelihoods from them, but they provide clean air and water to everyone.

Physical capital comprises the basic infrastructure and equipment needed to support livelihoods. Infrastructure consists of changes to the physical environment that helps farmers to meet their basic needs and to be more productive. Equipment covers implement and tools that improve production efficiency. Farm production performance could be enhanced or hampered by presence or lack of suitable infrastructure or equipment. Thus, without adequate access to services such as water and energy due to poor road infrastructure or absence/poor water sources and reservoirs. That could lead to long periods of non-productive activities such as the collection of water. The opportunity cost associated with poor infrastructure can preclude access to market of farm produce and that can affect farm performance. Without transport infrastructure, essential farm inputs such as fertiliser, seeds, herbicides, animal feeds etc. cannot be distributed effectively and subsequently farm production remains low.

Financial capital denotes the financial resources that farmers use to achieve their farming objectives. There are two main sources of financial capital, these are available stock and regular inflows of money. Available stocks could be in the form of savings, these are preferred type of financial capital because they do not have liabilities attached and usually do not entail reliance on others. They can be held in several form such as cash, bank deposits or liquid assets such as livestock or crops. Financial resources can also be obtained through credit providing institutions. Regular inflows of money include earned income, the most common types in rural areas are pensions, or other transfers from the state, and remittances.

5.2.2. Community-public-private partnerships (CPPP)

An action plan cannot be detailed without the full participation of those charged with the responsibility for its implementation. The strategic sector plan makes provision for a proposed protocol of **community-public-private partnerships and calls for joint implementation**. To this end, a permanent joint committee will be set up between the stakeholders involved in this strategic planning initiative, namely the Nyandeni Municipality, the Community Leaders and the Department of Rural Development and Agrarian Reform (DRDAR) as well as other identified stakeholders. Some stakeholders proposed on the figure bellow. It is imperative that the roles and beneficiation of all participating stakeholders be clearly stipulated. Furthermore, where necessary agreements (MOU's, MOA's, SLA's etc) should be forged in order to govern the partnerships. The primary functions of the recommended committee will include to:

- Define in detail all the strategic initiatives identified. These will include the specific action steps that are envisaged, the identification of those responsible for their implementation, the identification of other entities that need to become involved, the identification of other resources (financial and other resources) and the specification of timetables for implementation
- Create a management structure with the task to support the entities charged with responsibility for the implementation of each of these programmes, whether the entity is in the public, private or voluntary sector. This support will be of such a nature as not to interfere with the prerogatives of the responsible institution

- Create a reporting framework based on a plan for the monitoring and evaluation of the programmes and projects that make up the strategic plan. The permanent joint committee should report the results of these actions to the principal stakeholders on a regular basis.

Priority programmes

As a first step to move the strategic plan closer to implementation the following are the identified priority programmes:

- Implementation of the projects that are likely to improve rural economy. These projects are dairy, bee farming and irrigated crop and vegetable production
- Improved governance and implementation of partnerships and a mentorship programme
- Process of empowerment in all sectors of the agrifood sector. In this process mentorship programmes are critical and will be established immediately with full government support

Processes

The committee will be responsible at municipal level for the monitoring of progress and will oversee the programme of implementation. Working groups or task teams will be the key to the implementation process, and will have to report to the permanent joint committee. The strategic partners have to determine how resources (human and financial) from each partner are committed and managed in the process of implementing the various programmes and strategies.

The first and most important step is to communicate this strategy as widely as possible. The idea is that this document should be read widely and that information on the implementation programme should be shared regularly with all role-players. The process of delivering the sector strategic plan has thus begun.

The proposed protocol of community-public-private partnerships (CPPP) takes into consideration the fact that there are five fundamental capital assets that are required to enhance rural livelihoods. These are as discussed on the section above, thus, human, social, physical, natural and financial. It perceived the natural capital is the resource that is relatively available to the communities in NLM. Other resources are generally low as indicated in the situational analysis. Therefore, the CPPP model determines the human, physical, social and financial capital assets as imperative components in the implementation of the agricultural sector plan. The academic and research institutions are characterized as entities that should be considered for capacity building. The parastatals and NGO's are identified as the potential sources of financial support and some of them are indicated in the conceptual framework bellow. Finally the CPPP model recognizes that although the government is generally expected to be able to provide most the capital resources, government entities are characterized as the source of social and logistical support. The framework bellow is proposed an the names institutions are given as examples, thus, they should be considered exclusively and should consulted if the model is adopted.

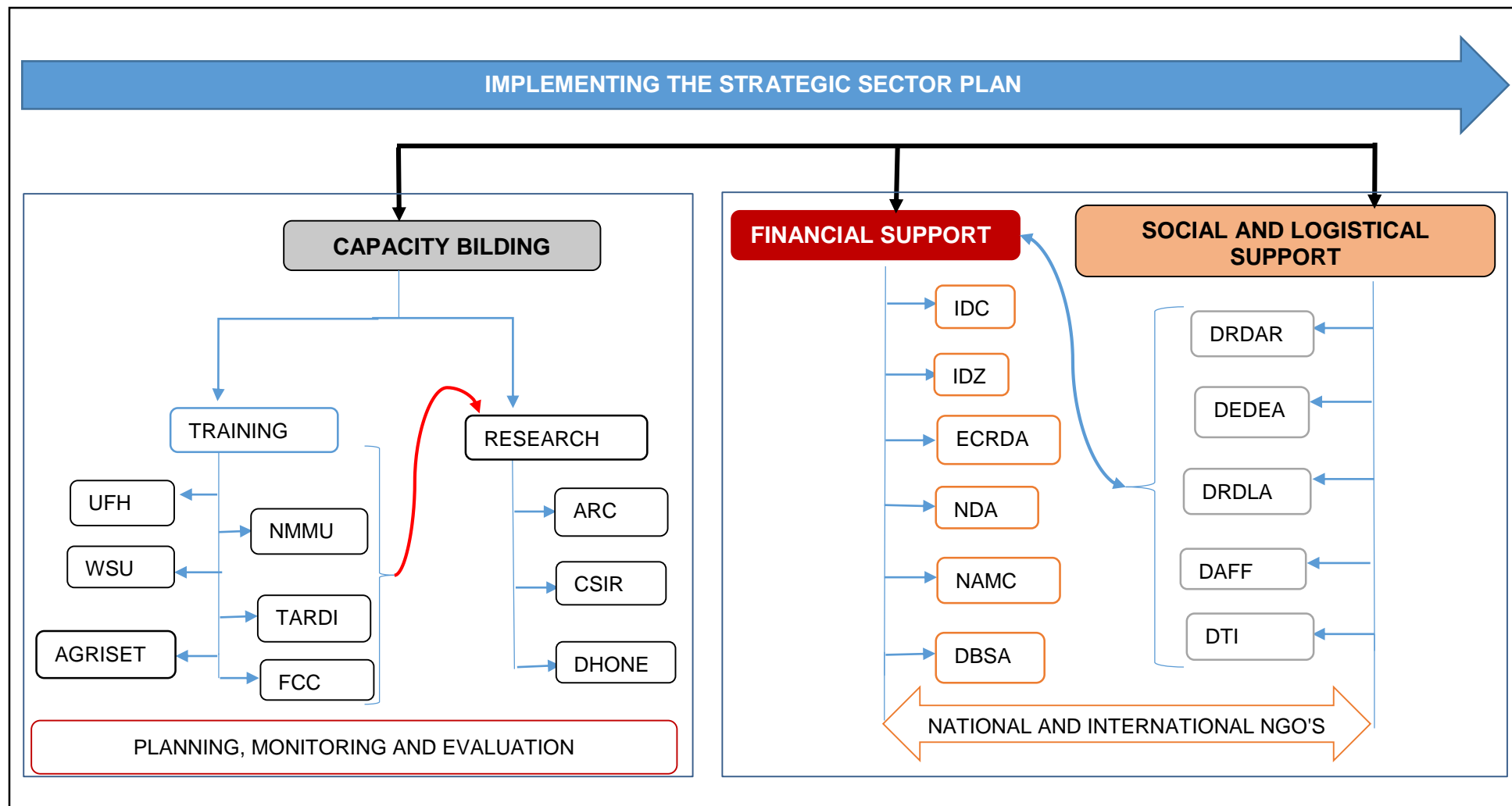


Figure 10: PROPOSED COMMUNITY-PUBLIC-PRIVATE PARTNERSHIPS MODEL FOR NYANDENI LOCAL MUNICIPALITY

5.2.3. Monitoring and evaluation

According to the CPPP model, monitoring and evaluation adopts the prospects of the sustainable livelihoods analysis (SLA). The economic and ecological/environmental impact of the farming entity on the livelihoods of the farmers and labourers, and on the community environment should be analysed with the Sustainable livelihood Analysis through periodic assessment. The economic impact of the farming should be measurable on the livelihoods upheaval of the farmers and workers in terms of income generated per unit time (Production cycle), per area (Ha) and per unit cost (R). The impact on farmer's livelihoods should be assessable based on the affordability as provided by the farmer's income to the basic livelihoods standards and that will be compared to the percapita national standards. Furthermore, the economic impact should be measured in terms of consistency (quality and quantity) in the supply of the products. It is important to acknowledge however, that quality will be difficult to measure and will therefore, be assessed with subjective indicators where possible. Monitoring and evaluation tools should be considered and developed to assess the impact of the adopted projects.

CHAPTER 6

6. CONCLUSIONS AND RECOMMENDATIONS

The agricultural potential of Nyandeni Municipality in its current state does not significantly contribute to household income as witnessed by the overreliance on external income sources by most of the households. Several factors are however responsible for the poor performance of the local agriculture sector to include;

- Poor, acidic soils
- Poor veld conditions
- Overreliance on subsistence farming approaches
- Missing local supportive markets to derive production

Need therefore arises to foster a holistic people driven intervention strategy that addresses the above challenges through introduction of a rural commercial value chain agricultural system that connects rural households with the private sector for business mentorship under a build operate and transfer model without forgetting synergies from the non-farm sectors thus anchoring rural agricultural development within a sustainable development framework that directly empowers rural communities to profitability benefit from their natural resources.