



**New Partnership for  
Africa's Development (NEPAD)  
Comprehensive Africa Agriculture  
Development Programme (CAADP)**



**Food and Agriculture Organization  
of the United Nations  
Investment Centre Division**

## **GOVERNMENT OF THE KINGDOM OF SWAZILAND**

### **SUPPORT TO NEPAD–CAADP IMPLEMENTATION**

**TCP/SWA/2910 (I)  
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**Volume V of VI**

### **BANKABLE INVESTMENT PROJECT PROFILE**

**Promotion of Sustainable Feed and Fodder  
Production and Utilisation**

*February 2005*



**SWAZILAND: Support to NEPAD–CAADP Implementation**

**Volume I: National Medium–Term Investment Programme (NMTIP)**

*Bankable Investment Project Profiles (BIPPs)*

**Volume II: Multipurpose Earth Dams Construction and Rehabilitation Project**

**Volume III: Promotion of Value–Adding Activities in Agriculture**

**Volume IV: Community–Based Natural Resources and Land Management**

**Volume V: Promotion of Sustainable Feed and Fodder Production and Utilisation**

**Volume VI: Mfumbaneni Hatchery**



## NEPAD–CAADP BANKABLE INVESTMENT PROJECT PROFILE

**Country:** Swaziland

**Sector of Activities:** Livestock

**Proposed Project Name:** **Promotion of Sustainable Feed and Fodder Production and Utilisation**

**Project Location:** Country wide

**Duration of Project:** 3 years

**Estimated Cost:** Foreign Exchange..... US\$0.72 million  
Local Cost ..... US\$1.02 million  
**Total..... US\$1.74 million**

**Suggested Financing:**

<i>Source</i>	<i>US\$</i>	<i>% of total</i>
<i>Government</i>	350,000	20
<i>Financing institution(s)</i>	995,000	57
<i>Beneficiaries</i>	397,000	23
<i>Private sector</i>	–	–
<b><i>Total</i></b>	<b><i>1,742,000</i></b>	<b><i>100</i></b>



## SWAZILAND:

### NEPAD–CAADP Bankable Investment Project Profile

#### *“Promotion of Sustainable Feed and Fodder Production and Utilisation”*

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### Abbreviations

CAADP	Comprehensive Africa Agriculture Development Program
CSO	Central Statistics Office
DOCs	Day Old Chicks
DVLS	Department of Veterinary and Livestock Services
EIA	Environmental Impact Assessment
EPAS	Economic Planning and Analysis Section [of MOAC]
FMD	Foot and Mouth Disease
GDP	Gross Domestic Product
GOS	Government of Swaziland
HDI	Human Development Index
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
MEE	Ministry of Enterprise and Employment
MEPD	Ministry of Economic Planning and Development
MOAC	Ministry of Agriculture and Cooperatives
NAMBoard	National Agriculture Marketing Board
NEPAD	New Partnership for Africa’s Development
NGO	Non-governmental Organisation
NMTIP	National Medium-Term Investment Programme
PSFFPUP	Promotion of Sustainable Feed and Fodder Production and Utilisation Project
RSA	Republic of South Africa
SDDB	Swaziland Dairy Development Board
SME	Small- and Medium-sized Enterprises
SMI	Swaziland Meat Industries
SNL	Swazi National Land
TEBA	The Employment Bureau of Africa
UNISWA	University of Swaziland
WTO	World Trade Organisation



## I. PROGRAMME BACKGROUND

### A. Programme Origin

I.1. The *Promotion of Sustainable Feed and Fodder Production and Utilisation Project* (PSFFPUP) was developed from one of the project ideas that came out from extensive consultations that were held with the *Department of Veterinary and Livestock Services* (DVLS). It is one among four project concepts under the livestock sector that were initially presented to the NEPAD–CAADP *Steering Committee* meeting of the 17th August 2004. The Steering Committee commented on this initial list of project concepts. These comments emphasised the need for the bankable projects developed to be very focused in their proposed interventions. In its meeting of the 1st September 2004, the Steering Committee eventually decided to focus on two areas of intervention under the livestock sector namely feed and fodder and improving the supply of chicks. Further to this, a *Stakeholder Workshop* was conducted on the 7<sup>th</sup> December 2004 where these projects were presented and feedback received. This project document summarises interventions proposed under feed and fodder.

I.2. In terms of the NEPAD–CAADP linkage, this project falls under pillar 5 “*livestock, fisheries and forestry*” but also cross–cuts to pillar 1 “*expansion of land under sustainable land management and reliable water control systems*”.<sup>1</sup>

### B. Country Information and Challenges

I.3. Swaziland is a landlocked country with a land area of approximately 17,364 square kilometres that is divided into six agro–ecological zones based on elevation, topography, climate, geology and soils: Highveld, Upper and Lower Middleveld, Western and Eastern Lowveld and Lubombo Range. Swaziland has a subtropical climate with summer rains (75 percent in the period of October till March) and distinct seasons. All regions receive a distinct seasonal rainfall, most of which falls in summer (September to March), whilst little or no rain is expected over the other months. The climatic conditions range from sub–humid and temperate climate in the Highveld to semi–arid climate in the Lowveld.

I.4. Swaziland’s population was projected at 1.01 million in 2002 of whom 73 percent live in rural areas. Its Gross Domestic Product (GDP) per capita in 2002 was US\$1,180 and it is ranked 133 out of the 175 countries covered by the United Nations Development Programme’s (UNDP) Human Development Index (HDI). The World Bank classifies Swaziland as a Lower Middle Income Less Indebted country. However, the incidence of poverty is very high and 2001 *Central Statistics Office* (CSO) estimates are that 69 percent (up from 66 percent in 1995) of the population lives below the poverty line of about USD 20 per person per month. The income distribution is also highly skewed with the richest 20 percent accounting for 56.4 percent of national consumption and the poorest 20 percent accounting for only 4.3 percent.

I.5. The performance of the Swazi economy has generally been sluggish for the better part of the 1990s and the new millennium. Economic growth for the 1997/98–2003/04 period is estimated at an

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<sup>1</sup> The CAADP Pillars are:

1. Expansion of the area under sustainable land management and reliable water control systems.
2. Improvement of rural infrastructure and trade–related capacities for improved market access.
3. Enhancement of food supply and reduction of hunger.
4. Development of agricultural research, technological dissemination and adoption to sustain long–term productivity growth.
5. Sustainable development of livestock, fisheries and forestry resources.

average of 2.7 percent whilst population growth is at 2.9 percent. This implies declining income per capita. Unemployment is also very high. Although unemployment statistics is poor, many observers agree that it may well be over 40 percent for some age groups, especially the youth.

I.6. Part of the sluggish performance of the Swazi economy emanates from the changed regional and global environment. The two most important developments of the 1990s in the Southern African region are the democratic reforms in the Republic of South Africa (RSA) and the end of the civil war in Mozambique. One major implication of these otherwise very positive developments is that competition for investment has become stiffer and countries like Swaziland have started losing out. There has also been a direct loss in employment opportunities for Swazis working in South Africa, especially mine workers who are being retrenched in numbers. *Ministry of Enterprise and Employment (MEE)* data show that the number of Swazis registered with *The Employment Bureau of Africa (TEBA)* — mainly miners — dropped from 15,892 in 1994 to only 8,308 in 2000.

I.7. In the global front, trade liberalisation under the *World Trade Organisation (WTO)* framework means competition in world and the domestic market is increasing. Some of the special dispensations that some Swazi products have been enjoying in some markets (such as in the European Union and the United States of America) are under threat and are being reviewed. Local industries are therefore under pressure to restructure in order to remain competitive. This has already led to a number of job losses, a trend that is expected to continue in the medium term.

I.8. All this is happening at a time when the country is also grappling with a serious HIV/AIDS pandemic. The national prevalence rate is now estimated at 38.6 percent. The highest prevalence rates are found among the 15–49 year age group, which forms the skilled and most productive segment of the population. The HIV/AIDS pandemic has come with a number of problems including that of increasing numbers of orphans and vulnerable children.

I.9. Prospects for economic performance are not optimistic in the short to medium term. The *Ministry of Economic Planning and Development (MEPD)* forecasts economic growth averaging 2 percent over the medium-term. The openness and smallness of the Swazi economy renders its performance to be mainly dependant on the external environment. Important determinants for economic performance remain the country’s ability to attract and retain investment (both foreign and local) which requires macro-economic stability and fiscal discipline. For an essentially agro based economy, environmental factors such as the weather are also very important determinants of economic performance.

### **C. Importance of Agriculture in the Economy**

I.10. Agriculture contributes about 10 percent to GDP. This has been declining over the years from the 40 percent that obtained at independence (1968). However, the sector remains very important considering that it provides most of the raw materials used in manufacturing. Agriculture is also of great importance to job creation and provides over 20 percent of all formal sector employment. More jobs are obtained from agriculture when the contribution of the *Swazi Nation Land (SNL)* sector is brought in, where over 70 percent of the population lives

I.11. The livestock sub-sector’s contribution to GDP is estimated at less than 2 percent. This is likely to be an understatement considering that much of livestock production occurs on SNL where operations tend to be informal and therefore not adequately captured in official statistics. SNL is land held under customary law and allocated to families through Chiefs and constitutes an estimated two thirds of the total land area. According to the *Ministry of Agriculture and Co-operatives (MOAC)*

2003 *Livestock Survey*, Swaziland had 561,019 heads of cattle, 326,476 goats, 15,979 sheep and 26,715 pigs. Population figures for chickens seem to fluctuate too widely over the years, probably reflecting the different time at which the survey is taken and are therefore not useful. However, the market for Day Old Chicks (DOCs) is estimated at 10 million birds, indicating annual poultry production of about 16,000 tons. In terms of distribution 86 percent of cattle, 96 percent goats, 81 percent sheep and 78 percent pigs are on SNL and the rest are on *Title Deed Land* (TDL) and government farms. TDL is land held under private title and constitutes about one third of the total land area.

## D. Livestock Production

### (i) Cattle

I.12. Cattle is by far the most dominant livestock in Swaziland. Keeping cattle is more than just a business enterprise to the Swazi; it is a way of life and is of great cultural importance. Cattle plays an important role during different kinds of traditional and religious events. This multiple role of cattle together with the free and open access to the range has contributed to serious environmental degradation as currently cattle numbers far exceed the carrying capacity of the available range. This is particularly the case on SNL, which carries the biggest numbers. A 2002 study on optimum stocking densities undertaken by E. Mukasa, D. Nkambule and A. Dlamini concluded that nationally there were about 27 percent more grazing and browsing animals than the range could sustainably support. Table 1 below summarises the results of the study.

	Highveld	Middleveld	Lowveld	Lubombo	Total
A. Current Density	87,948	139,365	127,600	18,061	372,947
B. Optimal Density	125,950	96,900	46,650	24,965	294,465
C. Current/optimal (A)/(B)*	0.69	1.44	2.73	0.72	1.26

Source: E. Mukasa, D. Nkambule, A. Dlamini, 2002.  
N.B: \* If ratio = 1, stocking rate is optimal; If ratio > 1, it is above optimal; and If ratio < 1, it is below optimal.

I.13. The dominant cattle production system on SNL is extensive grazing, with daily night kraaling preferred by most SNL herders, when convenient enough. This system is characterised by minimal input, often poor or minimal management and low productivity. This state of affairs has been a major concern to MOAC for a number of years. As a result the 1995 *Livestock Policy* puts commercialisation as a key focus area. Besides providing extension advice other interventions aimed at commercialising livestock that MOAC provides are the following.

- building and operating sale yards where monthly auctions are conducted;
- providing a livestock marketing information service;
- operating fattening ranches where farmers' animals are grass fattened in preparation for the market;
- operating a bull loan scheme and cattle breeding services at “Sisa” ranches,<sup>2</sup> aimed at improving the performance of the national herd.

<sup>2</sup> Government fattening and Sisa ranches were established following a concern on the overgrazing caused by overstocking of the SNL areas. The grazing pressure in these areas was causing range deterioration and hence soil erosion. The government ranches were therefore established in a bid to reduce the problem in these areas.

I.14. Due to the limited land size and the many competing land uses, it has been realised that commercialisation in the cattle industry has to involve intensive production. Some good initiatives in this direction have been started, some in collaboration with the private sector. One such initiative is done by the *Swaziland Meat Industries* (SMI), which is the only meat processor with a facility that is approved to export to the European Union, where Swaziland has an annual quota of about 2,300 tons. SMI supports a ration-based feedlotting scheme which it has contracted out to farmers. The company provides extension advice and also supplies the ration. Farmers provide the management, purchase the animals as well as provide the basic physical infrastructure. This scheme is still very new to judge, however it would seem its biggest two challenges are (i) being able to source enough good quality animals from farmers and (ii) keeping farmers interested by ensuring that they get an acceptable margin from this endeavour.

I.15. Another programme for commercialising cattle is on dairy. This programme is run by the MOAC in collaboration with the *Swaziland Dairy Development Board* (SDDDB). SDDDB is a parastatal tasked with developing and regulating the dairy industry. Under this programme farmers are taught good dairy husbandry skills and also assisted in purchasing good quality dairy cows — often from RSA.

I.16. On average Swaziland produces only 37 million litres of the 60 million litres liquid milk equivalents she consumes annually. Estimates from SDDDB are that in order to be self sufficient in milk production, Swaziland would have to almost double her 5,600 total number of dairy cows. Therefore theoretically, potential and a relatively big market exists in dairy, if milk can be produced cost-effectively. Recently the SDDDB launched a loan guarantee scheme for dairy farmers. Through this initiative, farmers will be able to borrow funds for running dairy projects against collateral provided through the scheme.

I.17. It is obvious therefore that quite a number of initiatives are being implemented in the livestock sector aimed at promoting intensive livestock production. However, one key constraint in the sector is access to feed and fodder. It has already been alluded to above that more animals are kept on the range than it can sustainably support. The result is land degradation as more fodder is extracted than it can regenerate itself. It may also come as a shock to some that during winter, when fodder is scarce, MOAC and SDDDB have found it in their interests to assist farmers in sourcing hay, often from outside borders. The situation would obviously be worse during drought years.

I.18. Intensive livestock production requires that adequate feed is available and at competitive prices. It is for this reason that among other things, this project proposes encouraging hay production, mainly in support of intensive livestock production.

#### **(ii) Other Livestock**

I.19. In recent years, there has been an increased realisation of the important role which the small stock sub-sector can play in improving food security and nutrition especially in rural and peri-urban

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Beside relieving grazing pressure in SNL areas, the ranches were established in order to enable the Swazi farmer to realize good economic returns from cattle that were better managed. In the fattening ranches the animals are fattened for a certain period and then sold on behalf of the farmer. Under overgrazed conditions animals are underfed and undernourished and hence are of no economic value. The Sisa ranches were established for the same purpose but Sisa ranches enables farmers to multiply their cattle numbers. Sisa ranches only admits female breeding stock. When these animals are admitted into a Sisa ranch, they are subjected to improved management practices such as breeding. The male calves are removed into fattening ranches after weaning, leaving the female calves behind which add to the foundation stock.

areas. A 1998 *Vulnerability Mapping* exercise conducted by MOAC in collaboration with *Save The Children* showed that even poorer households do own a few numbers of small stock from which they derive an appreciable source of food and income. Therefore improving the performance of the small stock sector, in which more people participate, has a better chance of reaching more people and therefore reducing poverty.

I.20. Maybe the biggest success in promoting the small stock sector is in poultry. Swaziland is now very close to self sufficiency in poultry products. Like in cattle production, poultry production is dualistic with the intensive system occurring side by side the traditional free range system, where homesteads keep 10–20 birds primarily for home consumption. In terms of numbers, production under the intensive system is estimated at about 10 million birds per year whilst according to MOAC records, a stock count of birds raised under the traditional system ranged from 750,000 to 1,000,000. Of the estimated 10 million birds under the intensive system, about 20 percent is raised by small scale producers, the majority of which are women. Therefore chicken production is now a very important industry not only in terms of its contribution to the incomes of farmers and their immediate family members but also in terms of trickle down to the rest of the neighbourhood. It is quite common for poorer members of the community to find “local employment” by helping out, especially during slaughtering, and get payment in kind in the form of the guts, heads, feet etc.

I.21. Although less successful, another ongoing initiative in the development of the small stock sector is in piggery. Until the Foot and Mouth (FMD) outbreak in 2000, MOAC had been collaborating with SMI in developing piggery. Essentially SMI provided the market for farmers and MOAC provided most of the extension and farmer mobilisation. This programme was well organised with a Memorandum of Understanding (MOU) agreed among the parties concerned i.e. government, SMI and farmers. This MOU had provisions covering issues such as quantities to be produced, quality, price negotiation mechanisms etc. A major problem with piggery is the huge cost of feed, which can account for as much as 80 percent of the variable costs. In fact the problem with the cost of feed is general to all the monogastric animals. In spite of Swaziland now having about three feed mills which can produce all (or most of) the different types of feeds, most of the key ingredients that are used currently are imported. As a result feed prices are quite high and margins for producers very thin. It is for this reason that the second component of this project will develop approaches aimed at reducing the cost of feed through increased utilisation of locally available materials and home prepared rations. There is still potential for utilising more by-products such as molasses, citrus waster, hominy chop etc

I.22. It is anticipated that feed usable by-product from industry will increase with increasing land being put under irrigated agriculture, especially molasses from sugar.

## II. PROJECT AREA

II.1. As it is described in greater detail in section V., the project essentially has two components, namely hay production and adaptive research into and promotion of means for reducing the cost of feed. The hay production component will start at targeted areas which are government farms (see map on Appendix 1) and then spread to communities who can identify land to set aside for fodder production. It is considered important that communities are allowed enough time to address land identification, selection and management issues. Therefore at this stage the selection of communities has not been made and this process will mainly be demand driven and occur with community mobilisation which is part and parcel of project implementation..

II.2. The selected government farms are namely Highveld Ranch, Gege and Khubutha. The Highveld Ranch and Gege both lie in the Highveld and Khubutha lies in the Middleveld. The Highveld lies 1,000–1,862 metres above sea level and receives an average of 850–1,400 mm per year. The Middleveld lies 300–1,000 metres above sea level and receives 650–1,000 mm of rainfall annually. The conditions in both regions will allow fodder to be grown under rain fed conditions. Rainfall will be an important selection criteria for participating communities since no irrigation is planned under this project.

II.3. The other components of the project are essentially research oriented and seek to find and promote cost-effective means of feeding livestock. The location of this component will therefore mainly be at the MOAC Research Station. There are possibilities for some research work to be done at the *University of Swaziland* (UNISWA). A budget has been provided from which competent institutions such as UNISWA can be contracted to conduct the research.

### III. PROGRAMME RATIONALE

III.1. Livestock production is essentially about converting feed (often based on plant materials) into livestock products such as meat and milk. Therefore the availability and cost effectiveness of feed determines the success or failure of the livestock industry. Estimates are that feed accounts for as much as 80 percent of the total variable costs in poultry and piggery production. The proposed intervention is therefore mainly aimed at improving feed availability and at cost-effective prices. This will require a two-pronged approach involving efforts aimed at increasing feed and fodder production as well as those aimed at reducing its cost whilst at the same time encouraging people to embrace its production as an enterprise. Specifically, the project will support and promote fodder production by government at the beginning and then communities and other interested small scale business people. The project will also source expertise that will assist in developing and promoting approaches for using more locally abundant feed ingredients (such as molasses from sugar production) and all other interventions that can help achieve the objective of reducing the cost of feed. All the enterprises that MOAC is already promoting such as intensive dairy, beef, poultry and piggery — as already elaborated on — will benefit from improved availability of and cost-effectiveness in feed and fodder resources.

III.2. It is expected that improving fodder availability will also have positive environmental benefits as it will relieve the pressure on the range. To reinforce these environmental benefits, communities participating in the project will be expected to participate in the rehabilitation of degraded land within their community. Fodder production will also contribute towards food security in that better fed animals fetch better prices in the market.

### IV. PROGRAMME OBJECTIVES

IV.1. The *overall objective* of the project is to improve livestock farmers' incomes through ensuring that feed and fodder are supplied in a reliable, cost-effective and environmentally sustainable manner.



IV.2. Other more *specific objectives* of the project are:

- To reduce the cost of feed by 10–20 percent through investigating and promoting cost-effective mechanisms for the preparation of feed rations using locally available inputs where possible, thus improving the viability of the livestock sector;
- To support efforts aimed at encouraging intensive livestock production systems through making feed resources readily available and accessible, thus improving the viability of the sector;
- To demonstrate to the SME sector the opportunities that exist in feed and fodder production as well as to encourage private sector participation in this industry;
- To improve community awareness on the importance of environmentally sustainable grazing management practices as well as to demonstrate the tangible benefits.

## V. PROJECT DESCRIPTION

V.1. The project is essentially about promoting farmer’s access to feed and fodder at reasonable prices as well as promoting their participation in the production of these resources which are so critical in determining the success or failure of their enterprises. For sustainability, the empowerment of the community will be an important component so that eventually they are the ones producing feed and fodder and the government and other development partners will eventually pull out. The involvement of the government is mainly for facilitation, demonstration and technical support, especially at the initial stages of the project. The project will have the following three main components:

- Development and promotion of sustainable fodder production;
- Investigation and promotion of the intensive use of cost-effective feeding approaches and practices using locally available materials; and
- Project management.

### **Component 1: Development and Promotion of Fodder Production**

V.2. This component will promote and support community and private sector involvement in hay production. To kick-start this process and mainly for demonstration purposes, the project will establish hay production units in three government ranches. The selected ranches are Highveld Ranch, Khubutha and Gege Dairy Farm and the target is to set aside 100 ha for hay production. From this area, production is expected to amount to about 900 tons (about 2,571 bales of 350 kg each). By the end of year three, 200 ha of land (of which 100 ha will be community land) would have been brought under hay production producing about 1,800 tons (5,142 bales) of hay annually. Project resources will be used to finance community and private sector mobilisation, fencing, required machinery and equipment for baling, project vehicles, planting materials and fertilisers. Hay cutting and baling services will be provided by the project on a cost recovery basis. It is anticipated that initially, the maintenance of the equipment will be done by the suppliers. However, the long-term objective of the project is that all required support services should be provided by SMEs, especially farmers themselves.

### V.3. *Activities under component:*

- Mobilise for the involvement of and interest from other developmental agencies such as the Swaziland Dairy Development Board, NGOs and other private sector institutions;
- Working with other developmental agencies, mobilise and identify communities with enough interest in the project concept, starting with those neighbouring the selected government farms;
- Rehabilitate or build fences in the pilot areas;
- Procure the required equipment;
- Plant grass and manage the operation;
- Extend fodder production to communities;
- Provide all required training for communities to effectively manage their project. Important topics to be covered will include both technical issues (e.g. fodder production, business management) and those aimed at social development (i.e. changing attitudes).
- Support participating communities to also rehabilitate their degraded lands.

### **Component 2: Investigation and Promotion of the Use of Cost-effective Locally Available Feed Materials and Approaches**

V.4. This component of the project is essentially about sourcing expertise that may not be available locally. Therefore this will involve some research work. However research will have to be mainly adaptive and concerned with trials of technologies that have worked in similar situations. It would also be important that research information is properly packaged for dissemination and promotion to farmers — the intended users. This component will mainly involve investigating the expanded utilisation of locally available materials in feed, and developing skills for preparing home-made rations both among extension staff and farmers. It is envisaged that buying ingredients and mixing these at home will help to cut down on the cost of feed. Some of the ingredients such as yellow maize can also be grown at home. The project will also promote the local production of such feed inputs. Also linked to this component will be an effort at identifying business opportunities in industries supporting the livestock sub-sector and promoting SME to take these up. Promotional materials and short and simple instruction manuals will be produced in both the English and siSwati languages for distribution.

V.5. *Activities under component.* This component of the project will have the following two sub-components:

- Research on utilisation of cost effective feed materials and promotion of adoption by farmers:
  - Procure Technical Assistance;
  - Solicit partnership with existing research institutions (e.g. UNISWA) involved in livestock research and collaborate;
  - Procure laboratory equipment for the Livestock Research Laboratory at Malkerns;

- Assess available types, quantities and nutritional value of local materials that can be used for feed;
- Mobilise communities to produce feed resources where it is viable to do so;
- Conduct research on the preparation of feed rations emphasising the use of more locally available materials;
- Based on results of the research, develop manuals on ration formulation (to be translated into siSwati) and distribute widely through the extension service;
- *Identification of business opportunities in industries supporting livestock production and promotion of SME involvement:*
  - Mobilise for a business development consultancy;
  - Prepare a publication on business opportunities in livestock support services (showing possible project profiles complete with pro-forma cash flow statements).
  - Distribute publication widely through extension staff, financial institutions, Developmental Funds, NGOs and others.
  - Promote the development of these industries, especially with the participation of SMEs. Government could show the way by buying feed for her own farms (and the Mpsi Farm Pig Breeding Centre once operational) from these SMEs.

### **Component 3: Project Management**

V.6. The project will be managed by a Project Co-ordinator who will preferably be an expert in animal nutrition or feed as well as have experience in community mobilisation. The Project Co-ordinator will have ultimate responsibility for ensuring that project funds are managed in accordance with donor and government procedures. The project will also hire an administrative assistant. Every year, project accounts will be audited by one of the local professional accountancy firms. These will be appointed jointly by all sponsors involved. Specific activities under project management will include;

- Managing and co-ordinating all project activities;
- Ensuring that monitoring and evaluation (mid-term and ex-post on months 18 and 36 respectively) of project activities is undertaken;
- Ensuring that an Environmental Impact Assessment (EIA) of project is undertaken;
- Co-ordinating a training programme, for farmers, MOAC staff and other participating development partners;
- Keeping proper books of accounts in line with procedures agreed among project sponsors; and
- Ensuring that the project is audited.

**VI. INDICATIVE COSTS**

Component/Activity	Component/Activity Cost				% of Base Costs
	Local	Foreign	Total	% Foreign	
<b>1. Project Management Unit</b>	<b>1,897</b>	<b>1,322</b>	<b>3,219</b>	<b>41.1%</b>	<b>33.6%</b>
Project co-ordinator (@E25,000 for 36mths)	810	90	900	10.0%	9.4%
Administrative assistant (@12,000 for 36 months)	389	43	432	10.0%	4.5%
Transport (2 pick-ups)	80	320	400	80.0%	4.2%
Vehicle maintenance	36	144	180	80.0%	1.9%
Office space & furniture (36 months)	72	0	72	0.0%	0.8%
Communication	60	0	60	0.0%	0.6%
Monitoring and evaluation	250	0	250	0.0%	2.6%
Auditing fees	75	0	75	0.0%	0.8%
Other O&M	25	25	50	50.0%	0.5%
Training specialist	50	0	50	0.0%	0.5%
Long-term training (Three Maters Degree)	0	500	500	100.0%	5.2%
Short term training	0	150	150	100.0%	1.6%
Workshops	50	50	100	50.0%	1.0%
<b>2. Development of Fodder Production</b>	<b>2,567</b>	<b>1,188</b>	<b>3,755</b>	<b>31.6%</b>	<b>39.2%</b>
<i>- Machinery</i>	<i>65</i>	<i>260</i>	<i>325</i>	<i>80.0%</i>	<i>3.4%</i>
Baller (1 @E150,000 each)	30	120	150	80.0%	1.6%
Hay rake (1 @E20,000 each)	4	16	20	80.0%	0.2%
Mowers (2 @E30,000 each)	12	48	60	80.0%	0.6%
Fertiliser distributor (1 @E20,000 each)	4	16	20		
Machinery O & M	15	60	75	80.0%	0.8%
<i>- Establishment of fodder units</i>	<i>2,502</i>	<i>928</i>	<i>3,430</i>	<i>27.1%</i>	<i>35.8%</i>
Fencing material	160	240	400	60.0%	4.2%
Planting material (E100/kg @8 kg/ha x 200 ha)	64	96	160	60.0%	1.7%
Fertilisers (300kg/ha @E2.5/kg x 200 ha)	120	180	300	60.0%	3.1%
Tractor hire (3hr/ha @E150/hr x 200 ha)	108	162	270	60.0%	2.8%
Special Environment Fund	250	250	500	50.0%	5.2%
Labour (60people @E10,000/person/year)	1,800	0	1,800	0.0%	18.8%
<b>3. Research on Cost-effective Feeding</b>	<b>1,134</b>	<b>1,466</b>	<b>2,600</b>	<b>56.4%</b>	<b>27.2%</b>
TA Nutritionist/feeds specialist: ruminants	42	378	420	90.0%	4.4%
TA Nutritionist/feeds specialist: monogastric	42	378	420	90.0%	4.4%
TA Business Development specialist	210	0	210	0.0%	2.2%
Laboratory equipment	50	200	250	80.0%	2.6%
Research fund	120	80	200	40.0%	2.1%
Publication material	400	400	500	80.0%	5.2%
Broadcasting fees	270	30	300	10.0%	3.1%
<b>Total Base Costs</b>	<b>5,598</b>	<b>3,976</b>	<b>9,574</b>	<b>41.5%</b>	<b>100.0%</b>
Physical contingency (10%)	560	398	957	41.5%	10.0%
Price contingency (8.0%)	462	328	790	41.5%	8.3%
<b>Total Project Costs</b>	<b>6,619</b>	<b>4,702</b>	<b>11,321</b>	<b>41.5%</b>	<b>118.3%</b>

Table 3: Estimated Project Cost by Component (US\$'000)					
Component/Activity	Component/Activity Cost				% of Base Costs
	Local	Foreign	Total	% Foreign	
<b>1. Project Management Unit</b>	<b>292</b>	<b>203</b>	<b>495</b>	<b>41.1%</b>	<b>33.6%</b>
Project co-ordinator (@E25,000 for 36mnths)	125	14	138	10.0%	9.4%
Administrative assistant (@12,000 for 36 months)	60	7	66	10.0%	4.5%
Transport (2 pick-ups)	12	49	62	80.0%	4.2%
Vehicle maintenance	6	22	28	80.0%	1.9%
Office space & furniture (36 months)	11	0	11	0.0%	0.8%
Communication	9	0	9	0.0%	0.6%
Monitoring and evaluation	38	0	38	0.0%	2.6%
Auditing fees	12	0	12	0.0%	0.8%
Other O&M	4	4	8	50.0%	0.5%
Training specialist	8	0	8	0.0%	0.5%
Long-term training (Three Maters Degree)	0	77	77	100.0%	5.2%
Short term training	0	23	23	100.0%	1.6%
Workshops	8	8	15	50.0%	1.0%
<b>2. Development of Fodder Production</b>	<b>395</b>	<b>183</b>	<b>578</b>	<b>31.6%</b>	<b>39.2%</b>
<i>– Machinery</i>	<b>10</b>	<b>40</b>	<b>50</b>	<b>80.0%</b>	<b>3.4%</b>
Baller (1 @E150,000 each)	5	18	23	80.0%	1.6%
Hay rake (1 @E20,000 each)	1	2	3	80.0%	0.2%
Mowers (2 @E30,000 each)	2	7	9	80.0%	0.6%
Fertiliser distributor (1 @E20,000 each)	1	2	3	80.0%	0.2%
Machinery O & M	2	9	12	80.0%	0.8%
<i>– Establishment of fodder units</i>	<b>385</b>	<b>143</b>	<b>528</b>	<b>27.1%</b>	<b>35.8%</b>
Fencing material	25	37	62	60.0%	4.2%
Planting material (E100/kg @8 kg/ha x 200 ha)	10	15	25	60.0%	1.7%
Fertilisers (300kg/ha @E2.5/kg x 200 ha)	18	28	46	60.0%	3.1%
Tractor hire (3hr/ha @E150/hr x 200 ha)	17	25	42	60.0%	2.8%
Special Environment Fund	38	38	77	50.0%	5.2%
Labour (60people @E10,000/person/year)	277	0	277	0.0%	18.8%
<b>3. Research on Cost-effective Feeding</b>	<b>174</b>	<b>226</b>	<b>400</b>	<b>56.4%</b>	<b>27.2%</b>
TA Nutritionist/feeds specialist: ruminants	6	58	65	90.0%	4.4%
TA Nutritionist/feeds specialist: monogastric	6	58	65	90.0%	4.4%
TA Business Development specialist	32	0	32	0.0%	2.2%
Laboratory equipment	8	31	38	80.0%	2.6%
Research fund	18	12	31	40.0%	2.1%
Publication material	62	62	123	50.0%	8.4%
Broadcasting fees	42	5	46	10.0%	3.1%
<b>Total Base Costs</b>	<b>861</b>	<b>612</b>	<b>1,473</b>	<b>41.5%</b>	<b>100.0%</b>
Physical contingency (10%)	86	61	147	41.5%	10.0%
Price contingency (8.0%)	71	50	122	41.5%	8.3%
<b>Total Project Costs</b>	<b>1,018</b>	<b>723</b>	<b>1,742</b>	<b>41.5%</b>	<b>118.3%</b>
Exchange rate US\$1.0 = E6.5					

## VII. PROPOSED SOURCES OF FUNDING

VII.1. It is proposed that donors finance most of the project management costs, part of the Environment Rehabilitation Fund, all the TA costs, part of training costs and part of the fencing material. It is proposed that government funds office space for Project Management, staff costs for all counterparts, all the machinery for hay making, part of grass planting costs, part of the Environment Rehabilitation Fund and part of printing and publishing costs. Beneficiaries provide all the labour associated with hay production including that required for the rehabilitation of degraded land. The hay producing units are expected to be self sustaining once established and therefore will not require continued financial assistance from the project except in relation to training and other technical assistance.

Table 4: Estimated Project Cost by Source of Funding (E'000)

Component	Total	Government	Donor	Beneficiaries
1. Project Management Unit	3,219	132	2,962	125
3. Development of Fodder Production	3,755	1,087	610	2,058
Machinery	325	325	0	0
Establishment of fodder units	3,430	762	610	2,058
5. Research on Cost-effective Feeding	2,600	700	1,900	0
<b>Total Base Costs</b>	<b>9,574</b>	<b>1,919</b>	<b>5,472</b>	<b>2,183</b>
Physical contingency (10%)	957	192	547	218
Price contingency (8.0%)	790	158	451	180
<b>Total Project Costs</b>	<b>11,321</b>	<b>2,269</b>	<b>6,471</b>	<b>2,581</b>

Table 5: Estimated Project Cost by Source of Funding (US\$'000)

Component	Total	Government	Donor	Beneficiaries
1. Project Management Unit	495	20	456	19
3. Development of Fodder Production	578	167	94	317
Machinery	50	50	0	0
Establishment of fodder units	528	117	94	317
5. Research on Cost-effective Feeding	400	108	292	0
<b>Total Base Costs</b>	<b>1,473</b>	<b>295</b>	<b>842</b>	<b>336</b>
Physical contingency (10%)	147	30	84	34
Price contingency (8.0%)	122	24	69	28
<b>Total Project Costs</b>	<b>1,742</b>	<b>349</b>	<b>995</b>	<b>397</b>

## VIII. PROGRAMME BENEFITS

VIII.1. Feed is the key resource in animal production. It is currently estimated that feed accounts for as much as 80 percent of the total variable costs in piggery and poultry production. In fact the piggery industry is in a serious squeeze as profit margins for SME producers in particular are estimated to be negative when fed according to currently recommended rations. For grazing animals, the range is also shrinking as more land is lost to homestead expansion, invasive plants that are out of control, erosion and degradation, expansion of urban areas, roads, and others. The proposed interventions will contribute towards addressing these problems as well as improving the profitability of the livestock industry. Where hay is concerned, there is currently no reliable private supplier and farmers often have to import from neighbouring countries. This is obviously at great transport cost to the farmer as well as

at risk to plant health. Local production will therefore reduce both this cost and risk. In terms of numbers, basically all the different owners of different types of livestock will benefit from the project. However in particular, the project will benefit mostly dairy farmers (about 395 of them), pig farmers (about 788 of them) and chicken farmers (about 700 doing broilers and layers).

VIII.2. Other more specific benefits are:

- Improved grazing resources means that animals will perform better in terms of higher weight gain (for beef), higher calving rates, higher animal survival rates, higher milk production (for dairy) thus increasing farmer incomes;
- 10–20 percent reduction in the cost of feed due to increased utilisation of locally available materials and home preparation of rations. This will translate into improvements in the profitability of industries such as chicken and poultry and therefore farmer incomes; Savings on time and transport costs as local fodder production will reduce the need for importing hay from neighbouring countries;
- More stable livelihoods as a result of diversification in crops grown — for those participating in fodder production;
- Reduced risk of importing diseases with imported hay;
- Environmental benefits from the reduced pressure on the range as increased fodder production adds to the feed resources available;
- Improvement in land management as participating communities will be taught better land management skills as well as be required to rehabilitate a part of the degraded land in their area.

## IX. IMPLEMENTATION ARRANGEMENTS

IX.1. Annex 3 summarises the management structure of the project in organogramme form. The project will be managed by a Project Co-ordinator who will preferably be an animal nutrition or feeds specialist with experience in community mobilisation. As already indicated earlier, it is proposed that a small independent office be established, staffed by the co-ordinator and administrative assistant, who will also handle accounts. However, the ultimate overall responsibility for project direction will rest with the Director of the DVLS.

IX.2. For each component, staff from the *Livestock Production Section* of MOAC will work as component heads. The head of the *Range Management Unit* will be component head (or appoint a capable and available officer) for the fodder production component. An officer responsible for livestock nutrition or feeds should be appointed component head for the component looking at research on the utilisation of cost-effective feed materials. All officers will participate in the sub-component for the identification of business opportunities in industries supporting livestock production but the head of the *Livestock Marketing Unit* will be the official sub-component head. Other departments of MOAC such as the *Department of Co-operative Development* and the *Economic Planning and Analysis Section* (EPAS) will also participate especially in the business opportunities identification component. A list of envisaged TA is presented under section X. below.

IX.3. There will also be a *Project Steering Committee* established and chaired by the Director of the *Department of Livestock Production and Veterinary Health Services* (or his nominated officer,

preferably the Head of the *Livestock Production Section*). This committee will not only comprise relevant government departments but also possible strategic partners and stakeholders from the farming community, parastatals (such as the SDDB and NAMBoard), the private sector and NGOs. The committee will meet as and when necessary but at least once every three months. Through its chair, the Committee will ultimately report to the Principal Secretary of MOAC.

IX.4. To address capacity constraints, the project would sub-contract some of its activities to other agencies. Two activities that could be easily sub-contracted out are the community mobilisation for hay production and research into reducing the cost of feed. By the end of the project, the communities are expected to have been trained and acquired enough skills to enable them to manage their projects effectively. However institutions such as NGOs and SDDB are expected to continue providing support to these communities and to extend the concept to other communities. It is recommended that at the end of project the hay making equipment purchased through the project be transferred to a semi autonomous institution such as the SDDB or an NGO. This will allow for more reliable continued provision of the service even after project termination.

## X. TECHNICAL ASSISTANCE REQUIREMENTS

X.1. ***Livestock Nutritionist/Feed Expert: Monogastric.*** This is expected to be a 12 months TA and its task would be to investigate the availability and possibility for using alternative sources of animal feed based mainly on locally available materials (such as molasses) as well as methods for the preparation of home made rations. In essence, the task of this expert is to develop ways of cutting down on the feed expense. The results will be documented in handbook form and distributed widely to relevant stakeholders. Both a siSwati and English version will be prepared.

X.2. ***Livestock Nutritionist/Feed Expert: Ruminants.*** This is also expected to be a 12 months TA and its task is the same as the one above except that the area of specialisation is in ruminants.

X.3. ***Business Development Specialist.*** This TA will be required to work on the identification and promotion of business opportunities in industries supporting the livestock industry. This TA should last about six months and there is the possibility that local expertise is available for this.

X.4. ***Training Expert.*** There will be need for a training need assessment to be carried out. This should look at all training needs required for livestock production as well as those for participating communities and recommend action to be taken. This should take one month.

## XI. ISSUES AND PROPOSED ACTIONS

XI.1. ***Capacity Building.*** Currently animal nutritionists are lacking in the country, especially in the government. There is therefore an acute need for more people to be trained in this area. The project will make available a budget for kick-starting this process which the government is expected to continue financing thereafter.

XI.2. ***Project Sustainability.*** A number of very good initiatives on livestock feed production have been initiated by government (with donor assistance) in the past but were later discontinued. The reason for this has mainly been the constraining government environment as well as a lack of adequate incentives in the government environment. It is usually easier to get things done during the life of a project when the flow of funds is easier but it becomes difficult to do the same under government



procedures. People get frustrated, lose motivation and may abandon activities. It is therefore very important that partnerships are developed and some activities contracted out to institutions such as the SDDB, NGOs and the private sector. This will help build the enthusiasm and energy required to sustain project activities, especially on the fodder production component.

XI.3. *Maintenance of Equipment.* Bureaucracy often makes it very difficult to maintain equipment under the government environment. For this reason, it is proposed that consideration be given to transferring the hay-making equipment to a semi-autonomous body such as the SDDB.

## XII. POSSIBLE RISKS

XII.1. *Community Disputes.* SNL grazing land is a communal asset in Swaziland to which every member of the community has access. It is possible that non-participating members of the community will have difficulty accepting the idea of fencing-off part of communal grazing land and therefore excluding their livestock from grazing. Every effort should therefore be made to involve as many members of the community as possible. At least every homestead neighbouring an area identified and targeted for hay production (and therefore to be fenced-off) should be encouraged to participate.

XII.2. *Theft of Fence.* It has happened in some projects that fence used in community projects gets stolen. This has mainly been observed in cases where communities do not feel any sense of ownership towards the project or where actually the project presents a cost to them e.g. the fencing-off of a road coupled with a failure to provide enough gates. It would be important that communities are not made to feel the fence is a gift from the project. This could be achieved by ensuring that communities contribute something towards the fencing costs. Two ways are proposed, firstly communities should provide the labour (and poles) for putting up the fence and secondly they should participate in rehabilitating degraded land in their area. There already exist a number of lessons on land rehabilitation projects from government’s own initiatives as well as from donor funded projects such as the recently completed Japanese-financed project.

XII.3. Sustainability of community projects on termination of external funding: Many community projects have seemed to work well whilst foreign funding lasted but soon collapsed when this terminated. The proper training and empowerment of communities as well as the involvement of agencies that have a more permanent presence in the community (such as the local livestock extension worker and the Swaziland Dairy Development Board) would therefore be very important for project sustainability



**ANNEXES:**

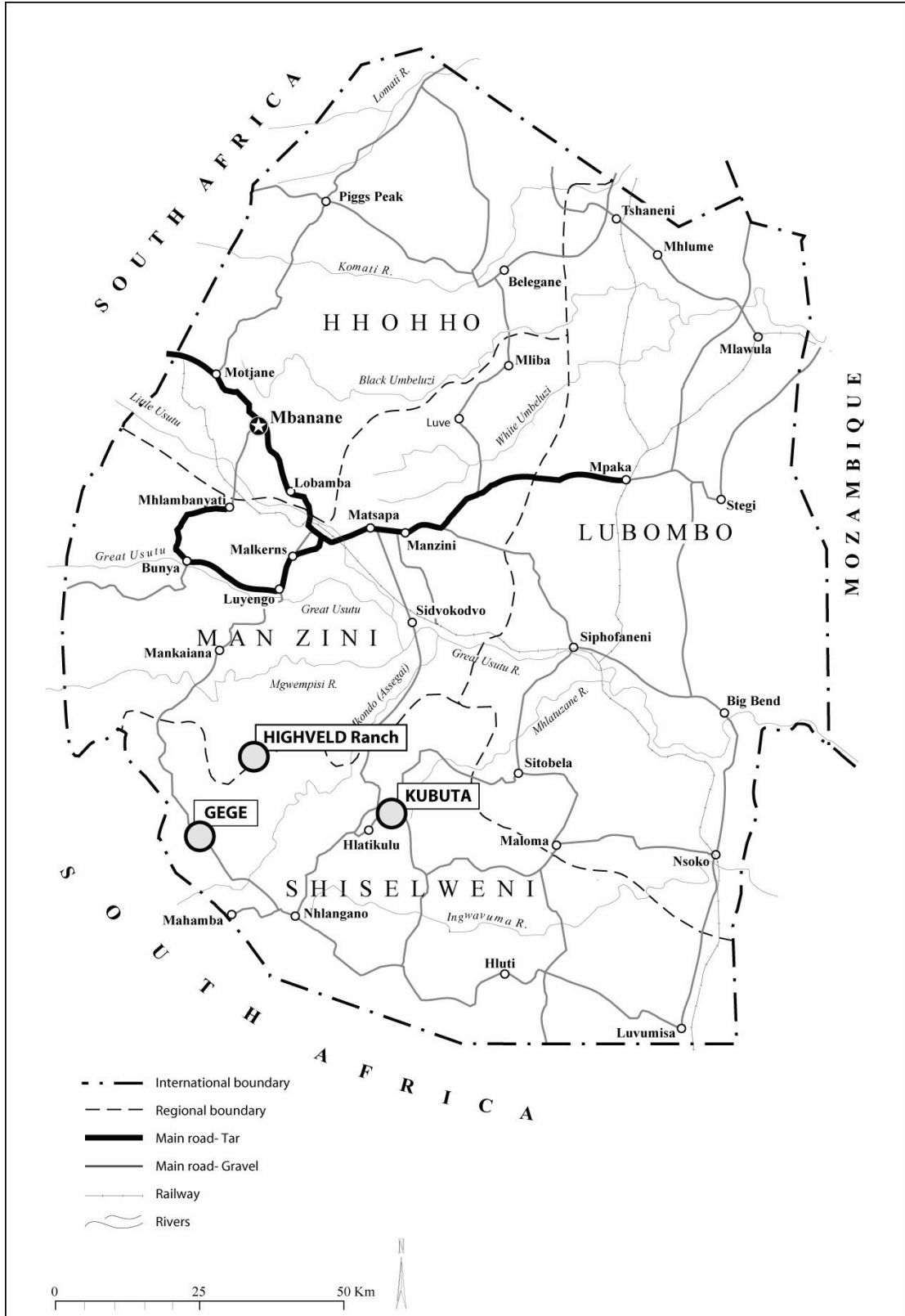
**Annex 1: Map Showing Government Ranches to be Used to Initiate Fodder Production**

**Annex 2: Costs and Benefits of Running a 10–ha Hay Operation**

**Annex 3. Organogramme for Project Management**



**Annex 1: Map Showing Government Ranches to be Used to Initiate Fodder Production**



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### Annex 2 Costs and Benefits of Running a 10–ha Hay Operation

Item	Emalangeni			US Dollars		
	Year 0	Year 1	Year 2	Year 0	Year 1	Year 2
<b>1. Establishment Costs</b>						
<i>1.1. Structures</i>	<i>50,000</i>	<i>2,500</i>	<i>2,500</i>	<i>7,692</i>	<i>385</i>	<i>385</i>
Fencing (about 2.4 km)	50,000	–	–	7,692	–	–
Structure maintenance (5%)	0	2,500	2,500	0	385	385
<i>1.2. Grass planting</i>	<i>17,250</i>	<i>–</i>	<i>–</i>	<i>2,654</i>	<i>–</i>	<i>–</i>
Tractor hire	3,250	–	–	500	–	–
<i>Land preparation</i>	<i>2,600</i>	<i>–</i>	<i>–</i>	<i>400</i>	<i>–</i>	<i>–</i>
<i>Seeding</i>	<i>650</i>	<i>–</i>	<i>–</i>	<i>100</i>	<i>–</i>	<i>–</i>
Inputs	14,000	–	–	2,154	–	–
<i>Fertiliser (300 kg/ha)</i>	<i>6,000</i>	<i>–</i>	<i>–</i>	<i>923</i>	<i>–</i>	<i>–</i>
<i>Planting material (8 kg/ha)</i>	<i>8,000</i>	<i>–</i>	<i>–</i>	<i>1,231</i>	<i>–</i>	<i>–</i>
<b>Total Establishment Costs</b>	<b>67,250</b>	<b>–</b>	<b>–</b>	<b>10,346</b>	<b>–</b>	<b>–</b>
<b>2. Operational Costs</b>						
<i>2.1. Harvesting</i>	<i>–</i>	<i>5,200</i>	<i>7,800</i>	<i>–</i>	<i>800</i>	<i>1,200</i>
Cutting	–	2,600	3,900	–	400	600
Baling	–	2,600	3,900	–	400	600
<i>2.2. Grass maintenance</i>	<i>–</i>	<i>3,000</i>	<i>3,000</i>	<i>–</i>	<i>462</i>	<i>462</i>
Fertiliser (150 kg/ha)	–	3,000	3,000	–	462	462
<b>Total Operational Costs</b>	<b>–</b>	<b>8,200</b>	<b>10,800</b>	<b>–</b>	<b>1,262</b>	<b>1,662</b>
<b>3. Revenue</b>						
<i>Gross Sales (258 bales @E150 each)**</i>	<i>–</i>	<i>25,714</i>	<i>38,571</i>	<i>–</i>	<i>3,956</i>	<i>5,934</i>
<b>4. Net Revenue</b>						
Deduct operational costs		8,200	10,800	–	1,262	1,662
Deduct structure maintenance		2,500	2,500	–	385	385
<b>NET REVENUE (excl. labour)</b>	<b>–</b>	<b>15,014</b>	<b>25,271</b>	<b>–</b>	<b>2,310</b>	<b>3,888</b>
<p>* Labour is expected to be contributed by community on rotation basis.  ** 2 cuttings expected in year one and 3 cuttings thereafter.  Exchange rate US\$1.0 = E6.5</p>						





### Annex 3: Organogramme for Project Management

