Government of Botswana European Union

PRIVATE SECTOR DEVELOPMENT PROGRAMME BOTSWANA

A Government of Botswana initiative supported by the European Union and the Centre for the Development of Enterprise

Technical tools for Graduating Communal Farmers

14 August 2015

Final report

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ABBREVIATIONS

BMC	Botswana Meat Commission
BOCCIM	Botswana Confederation of Commerce, Industry and Manpower
CDE	Centre of Development of Enterprise
EU	European Union
MTI	Ministry of Trade & Industry
LSD	Lumpy skin disease
GDP	Gross Domestic Product
M&E	Monitoring and Evaluation
MOA	Ministry of Agriculture
PSDP	Private Sector Development Programme
CEDA	Citizen Entrepreneurial Development Agency

1 Background

The Ministry of Trade and Industry (MTI) and the Botswana Confederation of Commerce, Industry and Manpower (BOCCIM) in partnership with the European Union (EU) and the Centre for the Development of Enterprise (CDE), developed a Private Sector Development Programme (PSDP) that was launched in May 2013 to address some key issues of the private sector development strategy (PSDS). The PSDP's role was to stimulate and sustain growth diversification of the economy while at the same time building capacities of institutions and human resources that supported the private sector. The PSDP interventions were mainly focused on the prioritized sectors of manufacturing including agro-industry, tourism, construction and public works, and information, communications and technology (ICT), respectively.

To achieve this private sector development strategy, the value chain development approach was adopted for each of the prioritized sectors. International Trade Centre was engaged to conduct the value chain on beef and an action plan was agreed to by the relevant stakeholders.

It is on this basis that an expert on livestock and beef was engaged to provide technical assistance to the graduating communal farmer's in order to enhance their competitiveness. The consultancy assignment started with the first mission of the needs assessment on the 18th May 2015.

The assignment is being undertaken under the supervision of the Centre for Development of Enterprise (CDE) and will report to it. A Monitoring and Evaluation (M&E) Committee composed of CDE, Ministry of Agriculture (MOA), Botswana Confederation of Commerce, Industry and Manpower (BOCCIM) and the PSDP will oversee the implementation of the assignment.

2 OBJECTIVES

The **objective** of the assignment is to ensure capacity building on technical tools for farming for five individual farmers who have already been supported by the Botswana Financial Institutions for improving the beef sector. These are farmers in the Sandveld region.

Beef is Botswana's second most important export after minerals (diamonds, nickel and copper). Strategically the beef sector is important because it contributes to the livelihoods of a large proportion of the population. For this reason the assignment has significance beyond the five direct beneficiaries.
Whilst the beef sector has experienced a number strategic problems in recent years, including among others the outbreak of foot and mouth disease (FMD), the temporary loss of the lucrative EU export market and changes in the terms of export trade, this assignment will focus on identifying the needs of the individual farmer and the measures that can be taken to improve their productivity and profitability.

The **results** of the assignment will be that the selected farmers gain the necessary capacity to improve the efficiency and therefore the profitability of their beef production enterprises.

3 METHODOLOGY AND APPROACH

3.1 Approach

A needs-driven approach to identifying the current problems that hinders opportunities for individual farmers to improve their cattle farming operations and profitability will be used.

Once the needs have been identified, the assignment will look at various elements of animal production that potentially have an impact on productivity. These will include the availability of water, production systems (grazing and fattening methods), availability and quality of forage and concentrate feeds through the year, cattle breeding and traceability.
The final area of investigation will be the business side. This will look into issues such as record keeping, cash flow and finance.

3.2 Scope of work

The scope of work as stipulated in the Terms of References based on four main activities which are the following;

1. Needs assessment of five selected farmers.
2. Conduct group training of farmers
3. Individual coaching for each farmer to improve performance in cattle farming, including:

- management and organisation including animal identification and traceability; animal breeding; feeding and grazing systems;
- resource allocation: finance and accounting;
- Annual plan development
- Fodder production.

4. Encourage cooperation with stakeholders including MOA, Department of Veterinary Services, BMC and others to increase beef value.

3.2.1Needs assessment

The needs assessment for individual farmers involves firstly describing the current situation of the farmer in terms of resources and current production systems.

The second step will involve analyzing the results of the assessment and identifying areas for possible improvement. This may involve a SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats):

Strengths and weaknesses are the internal characteristics of the farming business:

- Strengths = Characteristics of the individual farmer and his farm (e.g. good scientific knowledge of cattle farming, good natural resources available, good production system already in operation).

- Weaknesses = Shortcomings such as natural disasters for example veld fires , difficult accessibility to farms, prevalence of diseases

Opportunities and threats are external factors concerning the farm environment:

- Opportunities might include: exploring abundant market of the graduating farmers, possibilities to buy improved breeding animals.

- Threats are risks to the business, such as: high risk of disease outbreaks like Pasteurella, outbreak of veldt fires.

3.2.2 Action plan for capacity building

Based on the needs assessment of each farmer an action plan will be prepared to improve cattle farming productivity. The action plan will include short term and long term priorities and will take into account the strengths, weaknesses, opportunities and threats that have been identified. The action plan will include any training needs that have been identified as well as the availability of financial resources.

3.2.3 Individual coaching

Farmers will receive individual coaching tailored to their specific needs according to their needs assessment and SWOT analysis.

3.2.4Encourage cooperation with stakeholders

We consider that cooperation with stakeholders should be a two-way interaction. Therefore, Cattle farmers will be encouraged to work closely with the MOA, Department of Veterinary Services and BMC to improve productivity and marketing. One of the issues that can make this cooperation more effective is to spearhead the establishment of the secretariat for the Botswana National Beef Farmers Union.

4 ACTIVITIES DURING INCEPTION MISSION

4.1 Needs Assessment

Needs assessment was carried out for five graduating farmers. Itconsidered overviews of farming as a business it also looked into the current situation of the farmer in terms of resources and current production systems as well as the environment the farmers are operating in. SWOT analysis and proposals for individual coaching are presented in the following table;

4.1.1 Farmer 1

Farmer 1 Assessment	
Is farming the main business?	No
Main breeds	Simmental
Breeding method	All natural service using eight breeding bulls, all home reared.
Number of cattle in the farm	180
Animal health treatments	No proper livestock disease management except annual vaccinations of Anthrax, Black quarter by DVS
Employees	3
Record keeping	No records altogether
Needs assessment	Selection of bulls towards breeding Lack of knowledge on feed formulations Staff training on animal husbandry
SWOT Analysis	
Strengths	- This is a very big farm of 8 X8 km with very low number of cattle therefore pastures are very good - The boreholes yields a lot of water
Weaknesses	- Fire breaks not properly managed - Feed supplementation done haphazardly with no strategy - Lack of records.
Opportunities	- Do fodder production - Increase stock
Threats	- Veld fires and pasteurella outbreaks.
Individual coaching	
- Coaching will concentrate on looking on animal husbandry and business management enhancements to improve returns. - Advice will be provided on record keeping for business monitoring and cost control. - Advice on fodder production based on the fact that the farm is underutilised and has a borehole currently unequipped with high yields.	

- Buy more breeding stock to fully utilise the farm - Advice on the possibility of subleasing part of the farm to reduce the costs of maintaining unutilised farm. Doing this will mainly help in reducing overheads. - Advice on the appropriate period for keeping bulls bearing in mind that bulls determine what herd will be in a few years.

4.1.2 Farmer 2

Farmer 2 Assessment	
Is farming the main business?	Full time young farmer
Main breeds	All cross breeds comprising Tswana, Simmental and Brahman.
Breeding method	All natural service
Number of cattle in the farm	Currently 60 in the farm, building to 250 by buying from other farms
Animal health treatments	This is fairly new farm and in principle program for disease management is there. But not yet implemented as the farmer is busy buying breeding stock.
Employees	2
Record keeping	Registers :stock, deaths, births, medication are there and up to date
Needs assessment	Livestock management practices Fencing, water pipe lines and handling facilities. Staff training
SWOT Analysis	
Strengths	- Buying improved breeds from farms - Grazing is very good - Infrastructure development coming up very nicely
Weaknesses	- Buying breeding stock just anyhow regardless of quality breeds
Opportunities	- Good pastures will drastically reduce costs of supplementary feeding
Threats	- Pausterella outbreaks
Individual coaching	
Resource allocation and livestock management in general.	

4.1.3 Farmer 3

Farmer 3 Assessment	
Is farming the main business?	No
Main breeds	All cross breeds comprising Brahman and Simmental
Breeding method	All natural service
Number of cattle in the farm	180
Animal health treatments	No concrete program of vaccinations but vaccinate for pausterella and lumpy skin disease now and then.
Employees	1
Record keeping	No records but keep receipts of vaccines bought
Needs assessment	- Keeping of proper farm records - Staff training on husbandry practices - Encourage farmer to work closely with those next to him especially that they have rented farms adjacent to each other
SWOT Analysis	
Strengths	Have very good breeds,
Weaknesses	Lack of cost records Un strategic feed supplementation Unskilled labour on Husbandry
Opportunities	Make sale of heifers upcoming farmers
Threats	Pausteralla outbreak
Individual coaching	
Coaching will be directed towards Resource allocation and management (animal breed, livestock numbers, supplementary feeding and disease control). Annual plan development	

4.1.4 Farmer 4

Farmer 4 Assessment	
Is farming the main business?	No
Main breeds	All cross breeds of Brahman and Simmental
Breeding method	All natural service
Number of cattle in the farm	200
Animal health treatments	No concrete program of vaccinations but vaccinate for pausterella and lumpy skin disease now and then.
Employees	2
Record keeping	No records
Needs assessment	Keeping of proper farm records Staff training on husbandry practices Encourage farmer to work closely with those next to him especially that they have rented farms adjacent to each other
SWOT Analysis	
Strengths	Produces very nice bulls
Weaknesses	Lack of cost records Lack of market for bulls No strategic feed supplementation Lack of skilled labour
Opportunities	Make sale of heifers upcoming farmers
Threats	Pausteralla outbreak
Individual coaching	
Coaching will directed towards Resource allocation and management (animal breed, livestock numbers, supplementary feeding and disease control). Annual plan development Draw up a proper vaccination plan to be followed Annual sales of bulls and heifers in form of auction Training on proper record keeping	

4.1.5 Farmer 5

Farmer 5 Assessment	
Is farming the main business?	No
Main breeds	All cross breeds comprising Simmental, Tswana and Brahman
Breeding method	All natural service
Number of cattle in the farm	200
Animal Health treatments	No vaccination program in place but do vaccinations for pasteurella and Lumpy skin disease
Employees	4
Record keeping	None kept
Needs assessment	- Keeping of farm records - Encourage farmer to work closely with those next to him especially that they have rented farms adjacent to each other. - Train staff on husbandry practices
SWOT Analysis	
Strengths	- Farm well maintained
Weaknesses	- Lack of farm records - Supplementing without strategy
Opportunities	- These three farms can come together and do annual heifer sales to those who want to breed
Threats	- Pausteralla and LSD outbreaks
Individual coaching	
Coaching will directed towards Resource allocation and management (animal breed, livestock numbers, supplementary feeding and disease control). Annual plan development	

4.2 Farmer'sGroup Training

Following need assessment that was carried out, the following programme of training was done in order to address the needs thus identified. ***See Annex. 2***

4.3 Attendance of the Training

From the targeted five farmers only two farmers attended while two sent through their farm supervisors. One farm did not attend though he had confirmed that he will attend.

4.4 Training proceedings

Main topics of interest were farm management records, annual farm plan development, common diseases in the farms, supplementary feeding and feed formulations and lastly marketing.

As they are in a commercial setup they were encouraged to use livestock management software's that are available in the market as they come with online support. From these they will be able to do all reports; **management** (females inventory, which ones are ready to be served, number served, due for calving, due for weaning, due to be culled etc.), **breeding** (current status of both cows and bulls, herd distribution, inventory by genetics, performance analysis, treatments, culls etc),**services** (calving analysis, bull performance, pregnancy rates, semen inventory etc), **calving** (calves inventory), **all herd** (cattle list, animal performance, breeding and individual inventory, weights, treatments, track events list etc.), **groups** (group movements, group mortalities, group births, group treatments etc.), **Feed and financials** (expenses and revenues, feed inventory list, feed usage by period, financial summary, profit and loss statements, ration composition etc.)

For the annual plan development most farmers were doing reactive management where they will only react to situations as they arise, for example they will vaccinate against a certain disease after the loss of few animals. Below is the annual plan that was presented to them to assist as a guide in their own annual plan development.***See Annex 2***

Early disease diagnosis is very important on the treatment and herd health at large; Pasteurella and Heartwater were discussed at length from definition, cause, clinical symptoms, diagnosis, treatment and prevention.

Supplementary feeding constitutes the highest expense in the farm more often that it's not strategically done in order to get best results out of that feeding. As shown in the annual plan below, certain feeds are only given for a specific purpose at a specific time.

In order to cut costs of feeding, feeds can be formulated from readily available materials like crop residues maize or sorghum stover's and bran which needs to be beefed up with few concentrates like Di-calcium phosphate, molasses, salt and feed grade urea. The issue of fodder production is of paramount importance in farms where they have high yielding boreholes; crop like maize can be produced for production of silage; Lucerne and lablab can be grown as well. If most of the above are available, one can formulate their own feeds for maintenance, growth, production and also for pregnant cows.

The maintenance requirements of a cow are roughly proportional to body size. When feeding for maintenance,

- ⇒ We want to ensure that animals do not lose nor gain weight.
- ⇒ It is normally carried out using low energy diets at the beginning of the dry season.
- ⇒ Dry season runs from May to October/November
- ⇒ It is assumed that the rainy season starts in November.

Below is a typical diet for maintenance.

Table 2. High roughage and low energy diet

Ingredients	% composition
Maize/sorghum stover	65
Maize/sorghum/wheat/brewer bran	6
Lablab hay/Lucerne	26
Molasses	1
Feed grade urea	2
Dicalcium phosphate	0.3
Salt	0.3
Total	**100**

Below is an example of a fattening diet.

The amount of beef produced per cow per year is the most widely used criteria in beef herds today.

Table 3. Low roughage and high energy diet

Ingredients	% composition
Maize/sorghum stover	40
Maize/sorghum/wheat/brewer bran	14
Maize grain	42
molasses	2
Feed grade urea	1.4
Dicalcium phosphate	0.3
salt	0.3
Total	**100 kg**

In milk production;

Lactating cows are fed so that;

- ⇒ They can produce more milk of good quantity and quality.
- ⇒ In beef animals, milk is much more important to the calf and the calf should have free access to it's mother' milk

Below is an example of the production diet.

Table 4. Medium energy and medium roughage diet

Ingredients	**% composition**
Maize/sorghum stover	55
Maize/sorghum/wheat/brewer bran	5
Lablab hay/Lucerne	37
molasses	2
Feed grade urea	1.4
Dicalcium phosphate	0.3
salt	0.3
Total	**100 kg**

Finally in cattle marketing, the benefits of a well-organized beef cattle marketing system in Botswana which are numerous were highlighted. With majority of livestock owners in the country having extremely limited resource, organized marketing is required to assure farmers of all size holdings the opportunity for a fair return for their produce.

Farmers in Botswana have the opportunity to market cattle all year round through a number of different channels; BMC, butcheries, speculators, auctions etc. even in the remote areas.

Any livestock marketing system may be considered as three major activities;

a. Collection/ gathering of cattle to slaughter
b. Selection based on weight, age, gender, compliance to traceability(branded, tagged and bloused)
c. Transportation to slaughter

Based on three activities above, it is very important to do cluster selling in order to share costs and maximize profits so they were urged to work closely with each other on this issue of marketing; farmer A can produce bulls, farmer B produce cow + calf, farmer C produce heifers and by letting your neighbor to know what is available for sale as to maximize profits such that those interested in buying livestock should not go back empty handed while your neighbor has some stock.

5.0 INDIVIDUAL COACHING

Individual coaching commenced as was planned from 7h July 2015 to 9th August 2015. Two farmers due other commitments, they could not be available for coaching therefore their farm supervisors were there on their behalf.

Date	Farm	Remarks
7 July – 11 July 2015	Tsarutshaa	• Emphasis was more resource allocation as well as farm development plan • Record keeping • Common diseases management: Heartwater and Pasteurella
13 July – 17 July 2015	Mahatane	• Full utilisation of the farm to reduce over costs • Importance of following the annual plan • Common diseases management • Record keeping
20 July – 24 July 2015	Xhoxhago 1	• Resource allocation • Annual development plan • Record keeping • Combined livestock marketing
27 July – 31 July 2015	Xhoxhago 3	• Annual development plan • Records keeping • Resource allocation
5 Aug -9 Aug 2015	Xhoxhago 2	• Records keeping • Combined livestock marketing • Common diseases management • Importance of fertility tests on bulls and cows prior to breeding

In all the farms, ***Vaquitec 2012 Demo*** was used as an example of available cattle management software in the market. From this software; a farmer is able to do a number of reports which include – **Farm management** (breeding, individual animals, inventory etc), **Feed and Financials** (Expenses and revenue, feed inventory list, financial summary, ration composition, profit and loss statement), **All herd** (animal list, animal performance, entries and removals, treatments etc) just to mention a few.

Recommendation

In order for the Training and coaching to bear fruit I would like to recommend a bench marking trip to some farms in Namibia for five full days with all the five farmers. This will have a long lasting effect on their running of the farms sustainably and profitability, this is so because some of the concepts put forward, farmers felt that they were not applicable to them since they still small; the farm annual plan as much as they appreciated it they felt its just too expensive.

ANNEX 1: Programme of training

Programme Farmers Workshop	
Day one	
Time	**Topic**
1100	Arrival and registration
1300	Lunch
1400	Introductions
1430	Opining remarks
1500	Tea break
1530	Needs assessment report briefing
1600	group discussions of the report
1700	Close of day event
Day Two	
Time	**Topic**
700	Morning tea
800	Importance of feeding cattle (quality feeds)
1000	Tea break
1130	Feed supplementation using Blocks
1200	Discussions
1300	Lunch
1400	Grazing systems
1500	Tea break
1530	Fencing and padlocking
1600	Breeding
1700	Close day event
Day 3	
Time	**Topic**
700	Morning tea
800	Recap of previous day events
900	Fodder production and conservation

1000	Tea break
1030	Animal diseases and vaccination calendar
1300	Lunch
1400	Animal diseases and vaccination calendar continues
1500	Tea break
1530	discussions
1600	Farm tour
Day 4	
Time	**Topic**
700	Morning tea
800	Farm management
900	Annual plan development
1000	Tea break
1030	Discussions
1300	Lunch
1400	Farm records keeping
1500	Tea break
1530	Discussions
1700	Close of day events
Day 5	
	Topic
Time	Morning tea
700	Marketing
800	Tea break
1000	Closing remarks
1100	Lunch
1200	Departure

Annex 2: Annual Farm work Plan

Activity	January	February	March	April	May	June	July	August	September	October	November	December
1. Grazing Resources Management												
a. Grade firebreaks along fences												
2. Disease & parasite Control												
a. Tick control & fly control												
b. Deworming												
c. Multivitamin innoculation												
d. Pasteurella vaccination												
e. Botulism vaccination												
f. Lumpy skin vaccination												
g. Anthrax, Q-evil & Contagious Abortion Vaccination												
h. Fibrosis vaccination												
3. Supplemetary Feeding												
a. Dicalcium phosphate lick												
b.Feed protein licks												
4. Livestock breeding												
a. Check venereal diseases - cows/bulls												
b. Mating												
c. Calving season start												
d. Dehorn calves												
e. Wean calves												
5. Preparing Cattle for market												
a. Market weaners												