Burundi Agribusiness Program

Value Chain Studies

Phase I: Value Chain Selection Report

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This publication was produced for review by the United States Agency for International Development. It was prepared by Tom Lenaghan, DAI.

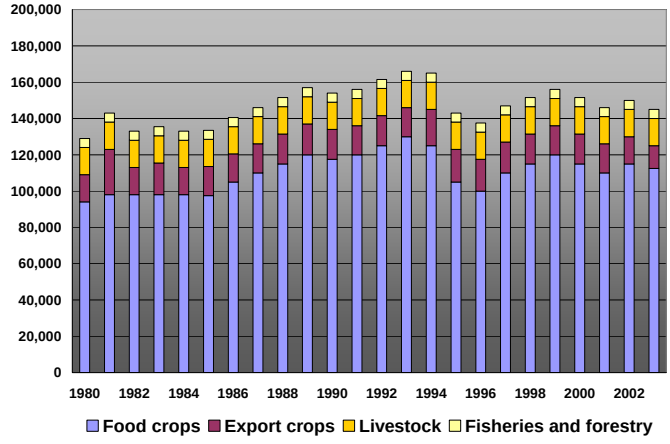
Introduction

This report is meant to provide USAID and the BAP project management with a comparative analysis of various value chains to aid in the design and targeting of project activities. It is a prelude to a later series of more detailed value chain studies. Its objective is not to present an analysis of the economic dynamics of the value chains covered nor to asses what actions are required to bring about significant growth in output or rural incomes. Rather, it provides some rough quantitative and qualitative yardstick measures for comparing the scale, dynamic potential and institutional architecture of different agricultural value chains to help BAP managers and USAID focus activities during project start-up and the development of the first year work plan. The data included in this study are, by necessity, relatively "soft." They are drawn from a variety of sources that are not always consistent. Thus the figures presented in the Value Chain Matrix on pages four and five that is the heart of the report, should not be taken too literally, as they reflect poor data to begin with in and, in some cases, estimation based on expert opinion and reasonable extrapolations. However, for our broad comparative purposes, they do provide a reasonable picture of the current state of the targeted value chains.

Methodology

The data and qualitative judgments presented in the Value Chain Matrix are the result of a three step process. In the first step, a universe of nine value chains was selected for analysis. When constructing the universe of value chains, we made a conscious attempt to include examples from the major categories of agricultural GDP that are shown below in Fig 1: food crops, export crops, livestock and fisheries/forestry. This arbitrary allocation is meant to ensure an equal focus in the scoring exercise to domestic market value chains (food crops and fisheries/livestock) and export value chains—since the BAP contract species that both types must be addressed by the BAP implementation team. Next, within these larger categories, BAP Team members from OTF and MSU who have been participating in the PAGE Sources of Growth process were polled to identify those value chains that they felt to offer the best prospects for rapid growth.

Fig 1. Agricultural GDP Composition, 1980-2003



(World Bank, Sources of Growth Study, June 2007)

This input resulted in a menu of nine different value chains for consideration:

- Export crops (coffee, tea, fruit, garden vegetables and cut flowers/ornamentals);
- Food crops (sorghum, potatoes);
- Livestock; and
- Fisheries.

Within the export and food crop categories, we consciously left out a plethora of potential value chains (rice, maize, beans, bananas, sugar, cotton, etc..). This was necessary in order to bring the scale of the scoring exercise down to a level where it could be completed in the allotted time. The chosen examples from among the food and export crop sectors were selected by our expert panel both because of their representivity and for their market potential. In any case, as noted in the final section of this report, the immediate goal of this study is not to set a definitive analytical agenda that will rule-out any particular value chain from future BAP assistance, but to simply focus project start-up activities.

In the second stage of the process, the study team collected data from all available sources on value chain production and growth potential to develop as many quantitative measures as possible in response to the seven USAID Scoring criteria listed in the BAP contract. Data was drawn from the following sources: World Bank PAGE reports; FAO market price and quantity data sets; Ministry of Agriculture reports and statistics; ISABU data on farm size and productivity; Livestock sector documents from the IFAD PARSE project and airport freight registers. This information was either reported as is in the Value Chain Matrix on pages four and five or used to make estimates where needed. During this process, the team made liberal use of simplifying assumptions in order to arrive at estimates of production values and growth potentials—since in many cases good quality data is just not available. Detailed notes of all the calculation methods and simplifying assumptions are contained in the Data Annex to this report.

In the final step, the study team consulted expert opinion within the BAP Team (Eric Kacou, Dan Clay, Luis Flores) and specific sector specialists in Burundi as well as several horticultural sector entrepreneurs. These interviews were used both to fill in specific holes in the data as well as to provide information on the qualitative aspects of the Value Chains.

Ranking and Scoring the Value Chains

The seven scoring criteria included in the Value Chain Matrix are taken directly from the BAP contract. To minimize the subjective content of the scoring, we made as much use as possible of quantitative indicators. Where this was impossible, we relied on qualitative assessments. We did not use numerical rankings, since there is no firm methodological basis for assigning coefficients to each scoring criterion to construct an overall index. In reality, all seven criteria are not of equal importance. The two most important ones for our purposes of targeting project focus are:

> Growth potential/BAP impact. BAP cannot have an equal impact across all value chains. Some present better opportunities because of market potential, local capacities and enabling environment factors. For instance, the limited purchasing power in the local economy means that unless, a specific new market opportunity can be identified,

opportunities for rapid growth in the basic food crops sector are almost wholly dependent on realizing significant productivity gains in existing farming systems that will lower costs and/or free-up farm land for other uses—a much more arduous and likely long-term task than, for instance, helping to link coffee farmers to known market opportunities in the specialty coffee market.

Private sector engageability. The implementation approach taken by BAP to work wherever possible through "anchor projects" built around a private sector stakeholder who needs technical and organizational assistance in structuring supply relationships with small farmers or in meeting external market requirements means that without such "anchors," the chances of lasting success are much diminished. Therefore, to a certain extent BAP will need to "follow the demand" from formal sector private entrepreneurs who have viable projects to develop new markets or products. Producing quick and lasting results in value chains without such actors will be a much tougher task.

The Value Chain Matrix on the following pages shows the overall scoring of the selected value chains according to the agreed criteria. The remaining sections of this reports discusses these rankings and concludes with a suggested approach to value chain targeting under the BAP project.

Value Chain Matrix

Selection Criteria	Coffee	Tea	Fruit (Passion Fruit + Ap Banana)	Garden Vegetables	Cut Flowers/ Ornamentals	Cereals (Sorghum)	Staple food crops (Potatoes)	Fisheries	Livestock & dairy
	Industrial Value Chains		Horticultural Value Chains			Major Food Value Chains		Other Value Chains	
Rural Income Potential	Very High	High	Medium	Medium	Low	High	Medium	Low	High
(a) annual value of production (Trend)	$ 41 M in export revenue (Cyclical)	$10.6 M in export revenue (Flat)	$500,000 in domestic formal sec sales + fresh exports (Dom: Up, Exports: Down)	$1.0 M sales of 6 main vegetables in Bujumbura; Exports are marginal (Unknown)	$175,000 in export revenues (Flat or Down)	$16.4 M in total production. Cash sales: $5.2M (Up)	$5.8 M in total production. Cash sales $2.9 M (Flat)	$9.6 M in domestic sales (Down)	$59.2 M total domestic sales of milk, beef, goat, pork. (Up)
(b) Growth Potential (5 years)	$60 M in export revenue	$US 20M in export revenue	$ 2.0 M in domestic and export sales	$1.5 M in exports of highland crops	$400,000 in export revenue	$2.0 M in increased domestic cash sales	$8.5 M in total value	Little or none	$800,000 in value added dairy sales, two units planed
Rural Employment Potential	Very High	High	Medium	Low	Low	High	Medium	Low	High
(a) # of producer households	700,000	50,000	Less than 3,000 now; 6,000 with growth	2,000 for export	Few or none	107,000	29,000	12,000	600,000
(b) downstream employment	2,500	2,000	< 1,000	< 1,000	< 1,000	unknown (informal brewers)	nil	1,200	Some employment in hides an dairy
Potential for Differentiated Product	High	Very High	Fresh: high Processed: Low	High in export w/improved packaging	Low	Medium	Nil	Medium	Unknown/Nil
(a) ratio of price differential for h/l quality in final market	1.75 – 2.5	25.0	1.2 (Fresh)	1.1 in domestic market	Too variable to measure,	1.5 for white to red sorghum	1.1 in domestic market	2.0 (Fresh)	Meat: nil Dairy: unknown Hides: 1.25

Value-added potential	High: potential for local specialty roasting and new processing for high quality	High: packaged teas have medium-term potential	Medium: processed fruit products offer export potential (juices, concentrate)	Low	Low	Medium: development of new sorghum based industrial beer	Low	Nil due to lack of supply growth	Medium: dairy and hides present opportunities
Linkages to GOB privatization	Very High	Very High	Nil	Nil	Nil	Low (seed sector)	Low (seed sector)	Nil	Nil
Private sector engageability	Very High exporters, dry mills and foreign investors	Medium, two private actors with new investment & foreign interest	High Fruito and smaller exporters	Medium Limited number of weak exporters	Medium 4-5 established exporters	High BRARUDI, informal sector traders	Low Informal sector traders	Low Informal sector traders	Medium Two start-up dairy operations, as yet unproven
Synergy with other donor programs	High WB/PAGE; EU/Stabex (CWS rehab)	High. WB/PAGE EU/Stabex (tea factory rehab)	High WB/PAGE EU/STABEX	High WB/PAGE EU/STABEX FAO, GTZ	High WB/PAGE EU/STABEX	Low Belgian Seed Project	Low Belgian Seed Project	Low FAO	High WB/PRASAB, IFAD, FAO; MYAPs

Value Chain Rankings

A close look at the rankings suggests the following groupings of value chains in (very) rough order of importance to BAP's objectives:

High priority value chains by virtually all measures: coffee and tea. These value chains show clear and immediate growth prospects focused on well known external markets with strong demand for a differentiated higher quality product than is currently being produced. They have good backwards employment linkages (small farmers and workers) and show high (coffee) or medium (tea) private sector engageability. In addition they are critical components of the GOB privatization program and have high potential for synergy—primarily with the World Bank PAGE program, but also with the EU-funded STABEX project.

Value chains that have clear growth potential and engageability, but are relatively small: all horticultural value chains (fruit, garden vegetables, cut flowers/ornamentals). The horticultural value chains, like coffee and tea, have good export market potential as confirmed by the PAGE horticultural sector assessment. They also regroup the majority of the Burundian private agribusiness sector (outside of tea and coffee). However, since Burundi's agribusiness exports have still not returned to their pre-crisis levels, the overall sector remains small and has not yet begun to develop the type of backwards supply linkages to small farmers that it requires to expand its employment impact. Despite the small numbers of farmer participants, these value chains are critical components of the overall agricultural sector architecture since they are the breeding grounds for the emerging modern agribusinesses whose development is a precondition for transformation of the sector.

Large-scale informal sector value chains with possible new linkages to agribusiness: sorghum and livestock/dairy. In these value chains, there are long standing mass-market decentralized supply relationships serving traditional markets side by side with opportunities for developing new linkages to agribusiness processors. In particular, the presence of two start-up modern dairy facilities in Bujumbura and the BRARUDI decision to develop a new sorghum based product provide important private sector engageability in what have been, until recently, sectors dominated exclusively by small informal sector operators. Although these initiatives are still a long way from establishing themselves, they represent potentially important structural changes in the agribusiness environment to which BAP can contribute.

Large scale staple food value chains: potatoes. As the potato example shows, these value chains affect large number of people, but have limited private sector engageability and limited potential for the development of differentiated products. Although the potential gain from value-chain level productivity enhancements is very high, the difficulty of leveraging private sector resources and the lack of purchasing power in final markets complicates the delivery of sustainable technical solutions. Without clear market-based projects and actors to support, assistance strategies focusing on these value chains run the risk of dissipating their efforts in broadly based support for improved production with

low sustainability. On the other hand, with the identification of *clear market demand*, as with the BRARUDI case, and potentially with World Food Programme food aid procurement needs, the incentive structures in these value chains can change rapidly and result in very promising possibilities for BAP contributions.

Low-growth value chains: fisheries. The fisheries sector centered on Lac Tanganyika is staring to suffer from uncontrolled over-harvesting in the artisanal sector that is reducing the fish stock and creating beach-front environmental problems. Although there are good value added possibilities associated with fisheries (drying, smoking and cold storage conservation) the sector is likely to require an actual reduction in the catch over the short term before growth can restart on a more sustainable basis. This short to medium term conservation dynamic limits the immediate growth possibilities of the sector.

Programmatic Consequences for BAP

Before we presents a proposed strategic menu of value chains, it is important to reiterate here that this first-cut at value chain prioritization is not intended as an exercise that sets the value chain agenda in stone for the life of the BAP project. Given the unpredictability of the Burundian context and the need to seize the limited set of viable opportunities that exist in a country facing Burundi's handicaps (high transport costs, an unfavorable business environment, costly and scarce financing, low education levels and scarce managerial talent), BAP cannot afford to ignore the growth potential of any product or market just because it does not fit into a pre-defined "value chain menu" developed in the first month of the project. At the same time it is important to recognize that all value chains are not created equal, and that for the specific purposes of targeting the value chain studies that are to occur in the next three months, there is some need to develop a sharper focus.

Recognizing these contrasting imperatives, we propose a two-level classification of value chains as follows:

Core value chains
- Coffee
- Tea
- Horticulture
    - Fruit
    - Garden Vegetables
    - Cut Flowers
- Dairy/Livestock

Opportunistic value chains
- Cereals (sorghum, rice, wheat, maize)
- Staple Food Crops (potatoes, bananas..)
- Spices
- Essential oils
- Others to be determined

Core value chains are all characterized by relatively complex multi-level relationships involving farmers, traders, processors and exporters. Achieving the growth targets for these value chains will require action not only at the firm level, but also better value chain level coordination to address common constraints (trade and regulatory policies, privatization progress, infrastructure) that will also involve public sector actors. For these value chains, we will conduct an initial round of **BAP value chain studies** building, where possible, on pre-existing PAGE analyses. These studies will provide the structure for involve the major players in each sector in an

iterative assessment of key constraints and opportunities to develop a common vision for each value chain and some degree of consensus about actions that are needed to attain it.

In contrast, conducting studies on the opportunistic value chains at this stage would be of lesser use to BAP or USAID. Most of these either do not have the required constellation of committed private sector actors at the top of the value, or they are so embryonic that there really is no value chain yet that one could study. In these value chains (or pseudo-value chains), BAP will be constantly assessing new opportunities as they arise, evaluating them and conducting feasibility assessments when justified. Such value chains constitute the "new business development" arm of BAP. The planed work to be undertaken in the BAP-BRARUDI white sorghum initiative is a good illustration of how such a project in an opportunistic value chain can be developed and integrated into BAP programming.

Thus we propose to focus the initial BAP value chain studies around the six core value chains. It is important to note two things regarding this initial dichotomy:

> It is conceptual and does not necessarily reflect programmatic priorities or resource allocations. In the core value chains, BAP will need to devote attention to managing a larger value chain coordination process involving multiple actors and addressing cross cutting issues. Launching this participative process will be a significant outcome of the initial value chain studies. However, this does not mean that BAP will not allocate significant resources to pursuing promising growth objectives in other non-core value chains. Due to limited resources in year one, for instance, BAP may well spend more effort on sorghum than on all the "core value chains" except coffee.
>
> It is not static and will evolve over time. As opportunistic value chains develop, they may well face new general constraints or spark new market entrants that raise issues of common vision and value chain coordination—leading to their reclassification as core value chains. Likewise, should BAP efforts to work in any core value chain prove to be unfruitful, we will stop them and refocus elsewhere.

Over the next three months, BAP will be conducting the value chain studies of the six core value chains, and begin the development of activities in a number of opportunistic value chains—leading with sorghum. With a major focus on coffee in year one, much of this initial focus will be on designing strategies that will be implemented beginning in year two, when project resources will be significantly increased. Specific activities will be described in the BAP year one workplan to be submitted in mid-November.

Annex: Comments on Data and Scoring

Coffee:

Rural Income Potential

(a) Production values and trend

Data is from OTF based on PAGE work. Data quality is quite good.

(b) Growth Potential

Assumes a 10% year growth rate driven by increasing sales into the specialty market based on PAGE projections.

Rural Employment Potential

(a) Producers.

Generally cited figures are 800,000. PAGE sector work estimates range from 600,000 to 800,000. 700,000 represents a midpoint. These estimates are subject to a high degree of doubt.

(b) downstream employment

Assumes 8 FT workers per CWS and 60 seasonal workers.

Potential for Differentiated Product

(a) Price ratio between high and low quality

Represents difference between C market price and normal range of Cup of Excellence lots.

Value-Added Potential

Main value added product would be the initiation of a local specialty roasted coffee. The market for such a coffee would be fairly small.

Linkages to GOB Privatization

Coffee is a centerpiece of GOB privatization and BAP can play a critical support role.

Private Sector Engageability.

A large number of local investors are interested in the coffee sector, led by the private interests who have invested in dry factories and washing stations (SIVCA and SONICOFF).

Synergies with Other Donors

There are strong possibilities for BAP to complement the strategic work done by PAGE on privatization and infrastructure finance provided by the EU through the STABEX program. The planned BAP pilot training activities beginning in year one with high-potential CWS follow directly from PAGE's work to target high-potential coffee areas.

Tea:

Rural Income Potential

(a) Production values and trend

Data is from OTF Tea reports. Data quality is quite good.

(b) Growth Potential

Figure is based on a $32 million estimated growth over 12 years presented in PAGE and World Bank Sources of Growth study completed by OTF. This is conditional on new private investments and improved efficiency in existing public tea factories.

Rural Employment Potential

(a) Producers.

50,000 figure is from OTF estimates.

(b) downstream employment

Estimate is based on OTB figures for public tea factories.

Potential for Differentiated Product

(a) Price ratio between high and low quality

Difference is between bulk and processed tea.

Value-Added Potential

Packaged tea produced in Burundi is a medium term possibility (within 5 year).

Linkages to GOB Privatization

Tea is a centerpiece of GOB privatization and BAP can play a critical support role. Progress on tea privatization may be even faster than coffee since it has been less politicized.

Private Sector Engageability.

There is one start-up private tea factory that plans to begin operations in 2008 (Giszoi Tea Factory). In addition, interest in investment from foreign tea sector players (Kenyan, Indian) is reported to be high.

Synergies with Other Donors

There are strong possibilities for BAP to complement the infrastructure finance that is being provided for tea factories by the EU through the STABEX program and for following through on sectoral technical assistance needs diagnosed by PAGE.

Fruit:

Rural Income Potential

(a) Production values and trend

Data is from MSU. This is for formal sector fruit products only. Domestic sales of processed product by Fruito accounts for about $200,000 of the total.

(b) Growth Potential

Figure is based on MSU estimates. Most of volume of growth comes from fresh apple banana exports. Processed passion fruit products also have potential.

Rural Employment Potential

(a) Producers and (b) downstream employment

Estimate is based on MSU figures.

Potential for Differentiated Product

(a) Price ratio between high and low quality

1.2 figure is for average for fresh product from OTF. High score for this indicator for fresh product comes mainly from potential of Burundi to develop niche exotic fruits such as apple bananas.

Value-Added Potential

Fairly good potential for processed fruit products (juices and concentrate).

Private Sector Engageability.

Fruito is mainstay of sector and there are a handful of dynamic smaller exporters of fresh fruit products.

Synergies with Other Donors

There are strong possibilities for BAP to complement prior work done by the EU through STABEX and the WB PAGE efforts.

Garden Vegetables:

Rural Income Potential

(a) Production values and trend

Data is from 2005 FAO data on weekly volumes for 6 vegetables collected in Bujumbura market. Vegetables are cabbage, carrots, eggplant, tomatoes, red and white onions. Price data also from FAO annual averages. Assumes this is representative weekly average over a full year.

(b) Growth Potential

Figure is based on MSU estimates. Most of volume of growth comes from estimated volumes of highland vegetables with possible out grower agreements to exporters.

Rural Employment Potential

(a) Producers and (b) downstream employment

Estimate is based on MSU figures and judged to be conservative given impact of similar projects in Rwanda.

Potential for Differentiated Product

(a) Price ratio between high and low quality

1.1 figure is estimate of domestic market premium for quality.

Value-Added Potential

MSU estimates that good potential exists for value added from improved packaging.

Private Sector Engageability.

Vegetable exporters are weak and inexperienced. Nevertheless, one company has restarted exports already in 2007 with shipments to Brussels on SN Brussels.

Synergies with Other Donors

There are strong possibilities for BAP to complement prior work done by the EU through STABEX and the WB PAGE efforts.

Cut Flowers and Ornamentals:

Rural Income Potential

(a) Production values and trend

Data and trend is from ATB figures for 2006 obtained in an interview.

(b) Growth Potential

Figure is based on MSU estimates. Assumes doubled volumes in five years. Data on cut flowers is very sketchy.

Rural Employment Potential

(a) Producers and (b) downstream employment

Cut flowers are mainly done as integrated farming operation with daily labor. ATB employs 200 people currently.

Private Sector Engageability.

There are 3-4 exporters of dracaena and one cut flower exporter. All are fragile, but together form the core of what could be a solid export sector.

Synergies with Other Donors

There are strong possibilities for BAP to complement prior work done by the EU through STABEX and the WB PAGE efforts.

Cereals/Sorghum:

Rural Income Potential

(a) Production values and trend

Data on production volumes is from MINAGRIE for 2006. Prices are from FAO data base and are based on simple annual average of monthly rural market prices in 2006 (excluding Bujumbura). This should give a good proxy for farmgate/rural values,

(b) Growth Potential

Figure is based on BRARUDI expected volumes of 7,200 MT per year of white sorghum purchases at 18 KG per hl of beer for a projected volume of 400,000 hl over a year. Prices evaluated at current wholesale white sorghum price in market in Bujumbura (300 FBU/KG).

Rural Employment Potential

(a) Producers and (b) downstream employment

Estimate of producers is based on ISABU data concerning surface areas (96,539 ha) and estimates from ISABU Production Department on average farm size planted in sorghum in the major production zones (between 1 ha and 0.1 ha) with the vast majority of volumes coming from the larger farms. An average size was assumed to be 0.9 ha.

Potential for Differentiated Product

(a) Price ratio between high and low quality

1.5 figure is ratio of white to red sorghum price in Bujumbura wholesale market (300 to 200 FBU/KG).

Private Sector Engageability.

High engageability rating based on BRARUDI, which is the largest private company in Burundi in terms of turnover.

Staple Food Crops (Potatoes):

Rural Income Potential

(a) Production values and trend

Data on production volumes is from MINAGRIE for 2006. Prices are from FAO data base and are based on simple annual average of monthly rural market prices in 2006 (excluding Bujumbura). This should give a good proxy for farmgate/rural values,

(b) Growth Potential

Figure is based on assumed improvement in average yields from improved seed stock and fertilizers from 7 to 10 tons/ha. Figures from ISABU Production Department. These estimates assume that these conditions apply widely in all major production areas.

Rural Employment Potential

(a) Producers and (b) downstream employment

Estimate of producers is based on ISABU data concerning surface areas (3,648 ha) and estimates from ISABU Production Department on average farm size planted in potatoes in the major production zones (between 0.2 and 0.3 ha), An average size was assumed to be 0.25 ha.

Potential for Differentiated Product

(a) Price ratio between high and low quality

1.1 figure is estimate of domestic market premium for quality.

Private Sector Engageability.

Potatoes lack a clear private sector value chain leader. There are possible private sector service providers (tissue culture), but no identified major buyer besides traditional traders.

Fisheries:

Rural Income Potential

(a) Production values and trend

Data on production volumes and values are from Département des Eaux, Pêche et Pisciculture for 2005. they cover only Lac Tanganyika.

(b) Growth Potential

Negligible growth is assumed as volumes are already declining due to over-fishing.

Rural Employment Potential

(a) Producers and (b) downstream employment

Estimate of producers is based on Département des Eaux, Pêche et Pisciculture figures from 2001 (8,000 people) assuming a 50% growth since then.

Potential for Differentiated Product

(a) Price ratio between high and low quality

The 2.0 price ratio is the difference between slightly damaged and perfect fresh dish in the Bujumbura market.

Private Sector Engageability.

Fish sector includes one industrial concern and a number of smaller traders in the informal sector. No investment is flowing into the sector.

Livestock/Dairy

Rural Income Potential

(a) Production values and trend

Figures on volumes from the IFAD PARSE Project (2007) for 2004. To arrive at value estimates we took prices taken from FAO Database for Bujumbura market in 2004 and applied to these quantities. Major subcomponents of production are as follows:

Milk: $ 15.3 Million
Beef: $ 16.5 Million
Goat: $ 13.7 Million
Pork: $13.7 Million

(b) Growth Potential

Growth potential based on estimated annual production value of one of two planned dairy concerns as follows: 6,000 lit/day capacity, X 20 days/mo X 12 mo at 600 FBU/litre / 1,055 dollar rate = 818,957= +/- $800,000

Rural Employment Potential

(a) Producers and (b) downstream employment

Estimate of producers is from World Bank Sources of Growth study.

Potential for Differentiated Product

(a) Price ratio between high and low quality

1.25 figure for hides is from OTF estimates.

Private Sector Engageability.

Medium engageability rating based on presence of new private sector entrants into the dairy market and large number of potential producer organizations involved in livestock activities.