Livestock Slaughterhouse Pre-Feasibility Study

ADB TA-9100 AFG

FINAL VERSION (reformatted)

November 18, 2008

ROOTS OF PEACE

This report was prepared at the request and with the financial support of the Asian Development Bank. The views expressed are those of the Consultants and do not necessarily reflect those of the Afghan Government or the Asian Development Bank.

KEY DATA SHEET

Name of Project:	Slaughterhouse Pre-Feasibility Study
Contractor:	Roots of Peace
Contracting Authority:	Asian Development Bank
Contract Number:	TA9100-AFG
Start/End Date:	November 10, 2007 to November 30, 2010
Budget:	$5,644,000 Consulting Budget, $12,356,000 Implementation Budget
Implementing Partner:	Ministry of Agriculture, Irrigation and Livestock
Executing Partner:	Ministry of Finance
Secondary Locations:	Kabul, Nangarhar, Bamyan, Balkh

ABSTRACT

This report is a pre-feasibility study of livestock slaughterhouses in Kabul and regional cities. The pre-feasibility study is linked to the on-going process of preparing for the Commercial Agriculture Development Project, an ADB-funded project soon to be tendered and implemented in Afghanistan. Implementation of this project and establishment of slaughterhouses in Afghanistan will provide livestock owners and livestock product processors opportunities to prepare and supply more value-added and hygienic products to consumers.

DISTRIBUTION LIST

Recipient	Copies (English)	Copies (Dari)	Format	Date Delivered
Donneth Walton	✓	-	Electronic	Sep, 2008
Allen Kelly	✓	-	Electronic	Sept 2008

AUTHORS OF REPORT

David M. Love	Slaughterhouse Specialist
Michael C. Blandy	Financial Analyst
Anton Van Engelen	Private Public Partnership Specialist
Dr. Kenneth E. Neils	Program Director

QUALITY ASSURANCE STATEMENT

Version	Status	Date
2 (reformatted)	Final	November 16, 2008

Checked by:

Name	Position	Date
Judd Robertson	Team Leader	November 16, 2008
Ken Neils, PhD	Program Director	November 16, 2008
Gary Kuhn	Executive Director	November 16, 2008

ACKNOWLEDGEMENTS

Ministry of Agriculture, Irrigation & Livestock

CONTENTS

ABBREVIATIONS AND ACRONYMS

ADB	**Asian Development Bank**
ADF	**Asian Development Fund**
AISA	**Afghan Investment Support Agency**
BOD	**Biological Oxygen Demand**
CADP	**Commercial Agriculture Development Project**
CVO	**Chief Veterinary Officer**
DCA	**Dutch Committee of Afghanistan**
EIRR	**Economic Internal Rate of Return**
EPAA	**Export Promotion Agency of Afghanistan**
FAO	**Food and Agriculture Organization**
FIRR	**Financial Internal Rate of Return**
FNPV	**Financial Net Present Value**
GOA	**Government of Afghanistan**
GTZ	**German Technical Assistance Agency**
MAIL	**Ministry of Agriculture, Irrigation, and Livestock**
MOC	**Ministry of Commerce**
MOD	**Ministry of Defense**
MOF	**Ministry of Finance**
MOPH	**Ministry of Public Health**
MOUP	**Ministry of Urban Planning**
NEPA	**National Environmental Protection Agency**
O&M	**Operations and Maintenance**
P	**Phosphorus**
PDA	**Provincial Department of Agriculture**
PPP	**Public-Private Partnership**
PPTA	**Project Preparation Technical Assistance**
PRT	**Provincial Reconstruction team**
RBSP	**Rural Business Support Project**
ROP	**Roots of Peace**
SCF	**Standard Conversion Factor**
SI	**Sensitivity Index**
SS	**Suspended Solids**
SV	**Sensitivity Value**
TKN	**Total Nitrogen**
TOR	**Terms of Reference**
UNDP	**United Nations Development Program**
WB	**World Bank**
US	**United States**
WTO	**World Trade Organization**

EXECUTIVE SUMMARY

Establishment of small and large scale slaughterhouses in Kabul and provinces is one of the priorities of MAIL, and has been included in the 5-year Master Plan of the Ministry. The Master Plan identified 10 provinces (Badakhshan, Balkh, Faryab, Ghazni, Herat, Kabul, Kandahar, Nangarhar, and Paktia) for the construction of slaughterhouses.

The Asian Development Bank requested the ADB-funded, Rural Business Support Project to carry out a pre-feasibility study of livestock slaughterhouses in Kabul and regional cities. The pre-feasibility study is linked to the ongoing process of preparing for the Commercial Agriculture Development Project, an ADB-funded, Project soon to be tendered and implemented in Afghanistan. Implementation of this Project and establishment of slaughterhouses in Afghanistan will provide livestock owners and livestock product processors opportunities to prepare and supply more value-added and hygienic products to consumers.

The pre-feasibility study was carried out under the supervision of Roots of Peace Management by a Study Team composed of a Slaughterhouse Specialist, a Financial Analyst, and a Public-Private Partnership Specialist from 24 June until 4 September 2008. The study was undertaken by the Team in Kabul and environs, Mazar, Kunduz, Phul-i-Khumbri, and Herat. Additional information on Nangarhar and Kandahar slaughterhouse sites was obtained from reliable sources in thee two cities.

With an assumed off-take of 15% of large ruminants and 25% of small ruminants, the number of livestock slaughtered each year in Afghanistan is about 1 million large ruminants and 5 million small ruminants. Most livestock in Afghanistan are slaughtered outside of a slaughterhouse. The most common livestock slaughter places include rudimentary facilities in or near towns, in places that are open, with a pit to collect blood, a place to dry manure, no running water and poor sanitary conditions. Inside the cities, small slaughter rooms, equipped with a wooden or metal bar with hooks and a pit for blood, are usually linked with a butchers' shop. Waste from these places is irresponsibly disposed of. In or near cities there are also government-owned facilities that are typically old, dilapidated, and, often times, damaged. Little, if any, investment is being made to rehabilitate or upgrade these facilities.

In Kabul, animals are slaughtered near the livestock markets in backyards and carcasses are transported, more often than not on the back of pick-up trucks exposed to dust, dirt and flies and not cooled. The estimated annual number of animals slaughtered in Kabul is 240,000 large ruminants and 1,000,000 small ruminants. This gives an annual figure of 68,000 mt of red meat, based on carcase weights of 200 kg and 20 kg for large and small ruminants respectively. This results in an indicative annual per capita consumption of 20 kg, based on a city population of 2.5 million. Other major cities, such as Heart, Kandahar, and Mazar, each have a potential demand for red meat in excess of 6,000 mt.

Based on an agreement between ADB and the MAIL, the MAIL was to identify potential slaughterhouse sites in Kabul and the regional cities. Although MAIL identified some sites, in most cases the exact boundaries of the identified sites (including topographical maps) and the evidence of the MAIL owning and/or controlling the sites (clear and legal records) were not provided to the Team. For some sites, it was clear that the Municipality, the Ministry of Urban Development and/or the Ministry of Finance have considerable control over development at the proposed sites. Nonetheless, the Team identified three potential sites (in Kabul, Mazar, and Herat) that met the selection criteria. Other sites identified by MAIL and followed up by the Team did not meet the selection criteria and were either eliminated for further consideration or required additional examination for appropriateness. For each of the slaughterhouse sites visited, the Team assessed and described the sites, and where the site met the selection criteria, developed the slaughterhouse facility requirements and prepared a possible layout of the slaughterhouse. On each identified site, the capital investment costs are estimated at US$ 3.3 million. The proposed slaughterhouse facilities will include live animal holding near the slaughterhouse for 2 or 3 days' kill, live animal holding within the slaughterhouse for pre-slaughter examination and inspection for current day's kill, slaughterhouse unit with slaughter facility, facility for the initial treatment and short term storage of hides and skins, facility for the initial cleansing, treatment and short term storage of green offal, storage and disposal of solid organic waste, and storage, treatment and disposal of wastewater from the whole site. The total area of any site will vary according to its location and the land available but will be based on an area of approximately 1.5–5.0 hectares. The proposed slaughterhouse unit will be based on a 600 m^2 building; the skins and hides primary treatment building will be 100m^2, and the intestine and casings primary treatment building will be 100m^2. The daily throughput, based on an 8 hour working shift per day, is projected at: 90 to 100 large ruminants (cattle and buffalo) and 480 to 500 small ruminants. Some sites also required significant investment in infrastructure such as electric power, roads, water supply, drainage, etc. All slaughterhouse activities will be governed by The Afghan Veterinary Service Act of 1996 and it's subsequent revisions proposed for 2008. All proposals for slaughterhouse development will be submitted at design stage for approval by the National Environmental Protection Agency in compliance with the Environment Law No. 912 of 2007 and the Environmental Impact Assessment Regulations No. 939 of 2008.

The most viable site identified is that of the former slaughterhouse in Herat. The site has extensive infrastructure including wells, roads, drainage, buildings etc and although some damage has been sustained, the site presents a realistic opportunity for refurbishment. One problem relates to ownership of the land as the current owners (MOF) are pursuing options for disposal to the private sector so the site may not be available to our project. The sites at Kabul District 18 and Mazar i Sharif appear to offer the most straightforward building programmes with the site at Poli Khumri requiring the biggest investment in site infrastructure. The site at Kunduz city centre has many potential benefits but is located in close proximity to a historic monument. The alternate sites at Kunduz and Herat have yet to be clearly identified and thus no definitive evaluation has been possible. Potential sites in Kandahar and Faisabad have yet to be identified. Work has begun to build a slaughterhouse in Jalalabad with support from the US Military (PRT). However the proposal is to 'improve' the existing situation and falls someway short of the ADB proposed development.

As far as management and operation of the slaughterhouses, an inventory was made of the various possible options. The options for it being run by the Government or the Municipality were both rejected, because these go against the government's economic development policy which promotes private sector driven economic development. The option of outright purchase with the current market credit interest rate of 15% does not seem to be attractive for the private sector as the financial models show only a 20% financial internal rate of return (and a 23% economic internal rate of return). The slaughterhouse model is particularly vulnerable to changes in animal throughput and the proposed slaughter fee.

The most viable options for operation and management of the slaughterhouse include either by the butchers or by a private entrepreneur, bound to engage in service slaughter. The option of the butchers operating the slaughterhouse is not recommended since the Butchers' Association is not a legal entity and does not have the management capacity to run a slaughterhouse for their members, unless it is run with extremely close supervision by an outside group and with hired capable management staff in the slaughterhouse.

The first choice of contract form would be between a long-term management contract (with an annual service fee) and a long-term lease purchase management contract. A long-term management lease contract would require less capital from the Lessee. But since the ownership remains with the Government, any additional private sector investment in the slaughterhouse would be unlikely.

A lease purchase contract, on the other hand, would not only provide the Lessee a long-term lease, but also the opportunity to purchase the slaughterhouse. In this case, there would be a better chance that the Lessee would make investments in the slaughterhouse that he eventually may purchase.

The operator of the slaughterhouses will make an agreement with the Butchers' Association as to the time animals will be brought for slaughter. It is foreseen that most animals will be brought to the slaughterhouse the day before, identified, and passed through a pre-mortem inspection. After having rested and been inspected, the animals for service slaughter will be slaughtered, the external identification been exchanged for a carcass identification and carcasses stored in the cold room. It is proposed that either the butchers pick up the carcasses directly from the cold room or that the slaughterhouse develop a truck delivery system for the carcasses to the butcher shops.

1 BACKGROUND TO THE SLAUGHTERHOUSE PRE-FEASIBILITY STUDY

1.1 INTRODUCTION

This pre-feasibility study forms part of the technical preparation for the Commercial Agriculture Development Project (CADP). During the Project Preparation Technical Assistance (PPTA) of CADP, the Livestock Specialist looked into the livestock related value chains. He found that in most places livestock markets are haphazardly placed in urban areas with animals staying overnight in special accommodations, and that, in most cases, slaughtering takes place in the open without any provisions to guarantee quality and safety of the product. The processing of livestock by-products, such as intestines, hides and skins, is only partially done in Afghanistan while the highest value adding steps occur in neighbouring countries. Investment in the sector has been identified as difficult due to the security risk and the difficulty of access to a suitable site. The conclusion reached is that considerable improvements in livestock slaughtering in Kabul and provincial cities could be achieved if modern slaughterhouses are located on suitable, carefully selected, sites that meet certain criteria. The pre-feasibility study was designed to look into the practicalities of such an approach focusing on MAIL identified sites in Kabul and in selected provincial cities. The study report includes a brief description of the PPTA of the CADP including the role of the livestock slaughterhouses in the CADP, the current livestock slaughterhouse situation and outlook, the supply of livestock and demand for meat, the relevant policies and regulations, the institutional framework, the slaughterhouse facility requirements, the selection criteria used for selecting the slaughterhouse sites, a description of the proposed slaughterhouse sites, the environmental and animal health regulations impacting the slaughterhouses, the description of the proposed slaughterhouse facility, the management and operations of the slaughterhouse, the project costs, financial analysis, and economic analysis

1.2 COMMERCIAL AGRICULTURE DEVELOPMENT PROJECT (CADP)1

The PPTA report identified project interventions that focused on the development of competitive and sustainable agribusinesses by removing constraints facing agribusinesses that occur throughout a number of product value chains from the farm gate to the consumer. This will be achieved by: (i) information support and match-making assistance from Regional Agribusiness Centers set-up in six regions; (ii) core and value train training through a training-of-trainers approach; (iii) a Value Chain Resource Fund to support research and demonstrations, technology transfer sub-projects, the development of feasibility studies and business plans (through links with Business Development Providers), pubic-private partnerships, in particular for abattoirs, and environmental mitigation measures (including waste water treatment facilities); (iv) improving access to credit via technical support for participating financial institutions and a $20 million credit line; (v) support for trade policy (in particular WTO accession) to foster and Improve the enabling environment; and food safety support, including accreditation and training at raisin laboratories to improve exports, as well as improved grades and standards for priority commodities. Project interventions will be implemented through the following components:

- Component 1 – Enhanced Agricultural Commodity Value Chain Efficiency and Competitiveness (43 percent of project costs),
- Component 2 – Agribusiness Finance Development (42 percent),
- Component 3 – Strengthened Policy and Enabling Environment (5 percent),
- Component 4 – Project Management Support (10 percent)

[1] Preparing the Commercial Agricultural Project (ADB TA No. 4696-AFG), Project Preparation Technical Assistance (PPTA) March 2008.

The Project will focus on a number of priority value chains that provide the greatest growth and value-added opportunities. These include, but will not necessarily be limited to, dried fruit and nuts, fresh fruit and vegetables, wool and carpet, and livestock (red meat).

The total project costs was estimated by the PPTA at US$ 58.2 million of which an Asian Development Fund (ADF) grant would contribute US$ 40.0 million and co-financing of US$ 10.0 million.

Rationalisation of ADB's Rural Business Support Project (RBSP) in April 2008 and subsequent CADP Fact Finding (July 2008) and Appraisal Missions (August 2008) resulted in a significant shift away from financial support for agribusiness to the improvement of agricultural marketing infrastructure and in particular slaughterhouses. Of a project cost now estimate of US$ 52.0 million, 63 percent was to be allocated to the turnkey construction of slaughterhouses. The Asian Development Fund (ADF) grant would contribute US$ 30.0 million, co-financing of US$ 9.4 million and significantly US$ 10.0 million would be financed by agribusinesses through management contracts with MAIL / MoF.

1.3 CURRENT LIVESTOCK SLAUGHTERHOUSE SITUATION AND OUTLOOK

1.3.1 Agriculture's Role in the Afghan Economy

Afghanistan's agriculture sector contributes to about 53% of the GDP, over $500 million of exports of mostly horticultural and livestock products, and provides employment for two thirds of the labor force. The growth in agricultural production between 1979 and 2004 has, however, been meager, only 0.85% per year. However, growth in the horticulture (mostly perennial horticulture) and livestock sub-sectors has started to increase at a much faster rate in the past few years as improved rainfall, irrigation infrastructure, husbandry practices, and disease control have facilitated better growing conditions. Such annual growth, i.e., 6-8%, in these sub-sectors is characterized by an elastic demand both domestically and regionally.

1.3.2 Livestock Farming

Livestock farming has been traditionally the mainstay of many Afghans. Most farming systems in Afghanistan, except the Kuchi system, are still of a mixed livestock and agriculture nature, which has proven to be one of the most robust and shock resistant farming systems.

Sheep and goats
Small ruminants are produced in two sectors:

- The Kuchi production system, which is (semi)migratory
- The settled production system

The Kuchi system in most instances is geared towards reproduction and has limited to no feed resources for fattening. Animals are sold and / or bartered for grain with traders and the sedentary farmers. Most sedentary farmers have small flocks of animals; many keep some fattening stock in their yards for fattening on crop residues, grain, and bought industrial by-products. The lambs are sold to traders at at the age of 3-4 months at around 15kg, and those not ready for slaughter, fed for a few weeks. Most lambs are slaughtered in the spring and early summer, most cast ewes are slaughtered in the late autumn / early winter for the production of dried meat for the winter ("landi" sheep).

Livestock numbers, especially small ruminants, fluctuate over the year and are sensitive to drought, and out migration. Many flock owners, in Pakistan, are originally Afghan, but migrated there during the war years to find better grazing, support services and markets and as a result stayed. There is anecdotal evidence of some animals being imported through Badakhshan from China, but other imports of sheep and goats are limited due to the higher price levels in accessible neighbouring countries. Sheep and goats, especially lambs and kids, are exported to Iran and Pakistan markets where the prices are better than in Afghanistan.

Buffalo and Cattle

Cattle production is concentrated mainly in the settled production system, in which families keep 1-2 cows. The animals are important for the production of manure as fuel, calves for future animal traction or fattening and sale / slaughter. Most young stock is slaughtered at a very young age with a weight of around 100kg, probably so young and light because of shortage of feed for over wintering and / or to maintain the family's cash flow. Most local cattle, except in the peri-urban areas and around the areas of former state dairy farms, are of the traditional "Vatani" (local) breed and have an adult live weight of anything between 180 and 300kg. With their size most butchers, who usually do not have working cooling facilities, can sell a carcass in one day.

Imported buffaloes and cattle from Pakistan form an important source of slaughter animals for the major urban centres in mainly the South-east and Central parts of the country. But they can also be found on livestock markets in the north. Buffaloes are either young bulls or cast cows; the cattle are mainly bulls and steers. These animals are generally heavier than the locally produced stock, but per kg, cheaper, as the quality is lower.

1.3.3 Livestock Trade and Markets

The domestic livestock trade is usually vested in trusted members of village communities, who will buy animals from farmers either on commission (but with no mechanisms for the farmer to verify whether he got the right price on the return of the trader) or outright purchase. In both cases a farmer will have to wait for up to 2 months for his money. The animals are driven to either an intermediary livestock market and sold there to traders or taken to terminal markets such as Kabul and Kandahar.

In addition to the trusted traders in the community, there are traders coming from outside the area. These traders either use barter goods (e.g. grain, potatoes depending on what they can purchase nearby cheaply or other food stuff) or pay on a cash basis. The prices paid by these traders are generally less than those paid by the community traders, but at least they pay instantly, which at times is important for the farmers.

Individual butchers buy the animals they need for slaughter, either for immediate slaughter or for the future. In most cases they take these animals on credit again from the livestock trader, who has to wait for the animals to be slaughtered and the meat sold. Only then does the butcher pay the trader who in turn can return to pay the farmer. This suppliers' credit system is guaranteed for a small fee by the management committee running the livestock market on behalf of the municipalities or the lessee of the market. Both butcher and trader pay a small premium and the management committee guarantees the payment to the livestock trader in case the butcher defaults. In some cases the butchers work with money advanced to them by the hides, skins and casings traders, who in this way ensure that they get the hides, skins, and intestines.

Most livestock markets are "regulated" by the municipalities but in most cases there is no veterinary inspection and/or supervision. The municipalities have usually rented out these markets, usually through a tender system that allows for renewal of the rental agreement annually.

1.3.4 Slaughter, Slaughterhouses and Butchers

Most animals in Afghanistan are slaughtered outside of a slaughterhouse and, in many instances, at home. The slaughter places can be divided into:

- Rudimentary facilities in or near to towns, usually open, with a wooden bar with hooks, a pit to collect blood and a place to dry manure; usually no running water and sanitary conditions dire, usually no veterinary inspection pre and post mortem,

- Small slaughter rooms, usually inside the cities, with a wooden or metal bar with hooks and a pit for blood. Usually linked with a butchers' shop. Waste from these places is irresponsibly disposed off (e.g. in Kabul in the river or the gutter, bones with the solid waste of the neighbourhood),

- More formal facilities, usually old, worn and/or damaged and owned by government or municipality. Little, if any, investment is being made to rehabilitate, keep up and/or upgrade these facilities (details are summarised in Supporting Appendix 2 Annex 2.1).

Most small ruminants are killed in special houses or yards, near the livestock market, with the above mentioned rudimentary facilities. In this way the butchers don't pollute the surroundings of their shops with blood and it is easier to transport dead rather than live animals. In the case of buffaloes and cattle, these animals are usually gutted at the same place so that the carcass becomes manageable for hand lifting. Small ruminants are usually stunned, bled to death and transported entire. Cattle or buffalo carcasses are often stored in the skin in front of the butchery. Sheep and goats are further slaughtered on the street in front of the shop. The skins and small intestines are procured by agents of the skin and hide traders and taken away.

There are two types of butchers:

- Wholesalers, who slaughter and sell warm carcasses or quarters in the case of cattle and especially buffaloes, to smaller butchers. As these wholesalers do not have cool facilities they have to carefully assess how much they can sell as "wholesale" and in retail so as not to be left with meat in the evening,

- Retail butchers, who sell meat either from sheep they procured and slaughtered themselves or from the above mentioned wholesalers.

Butchers generally do not prepare special cuts but sell meat, fat and bones as a mix. There is therefore only one price per kg. Some have a mincer, often driven by car engines. Some of the smaller butchers have procured cold displays from, in most cases, Iran. These are the better organized butchers, who often learned the trade in Iran. In most instances these cool facilities cannot be used because of the lack of electricity. This means that meat should be sold the same day, especially in summer. Customers prefer to buy "warm" meat as "cold" meat is associated with defrosted low quality meat from mainly India (de-boned buffalo). Meat stored overnight in a fridge is usually 5-10% cheaper than "warm" meat.

1.3.5 Peculiarities of the Afghan Livestock and Meat Sector

Financing of the Value Chain

Most operators in the value chain work with the money of others. It appears that the farmers and the hides, skins and intestine traders are the main providers of cash to the other stakeholders. This system of pre-financing means that farmers are in many cases left waiting for their cash. Livestock traders have “down-time” in town until the butcher has sold the meat of the animal sold to him and the hides, skins and intestine traders have considerable amounts of money outstanding before they have procured their goods.

Customer Preference for “Warm” Meat

Afghans measure the freshness of meat by the temperature. This probably is related to traders trying to sell defrosted meat as being fresh (e.g. de-boned buffalo meat from India) or a remnant from the times that every household slaughtered its own animals. Special cuts and price differentiation for the different qualities are unknown.

Fragmentation and Little Development Potential for the Value Chain

Most traders and butchers work with small numbers of animals but have relatively high overhead costs, slow turn-over and high wastage. Investments, under the current conditions of no electricity and no improved slaughter facilities, are not profitable.

Simple Value Chain and Little Value Addition

The main stakeholders in the value chain are farmers, livestock traders, butchers, and consumers. Animals pass through the chain in small quantities at the time. For this reason, nobody has started to bringing large quantities of animals into the market and to produce wholesale carcasses, since the whole chain is geared towards small batches. The possibilities for value adding through deboning and preparing cuts have not been exploited. There is no evidence of local sausage making.

1.4 SUPPLY OF LIVESTOCK AND DEMAND FOR MEAT

1.4.1 Potential Provinces Identified

The Livestock Chapter of the MAIL’s Master Plan identified 10 provinces (Badakhshan, Balkh, Faryab, Ghazni, Herat, Kabul, Kandahar, Kunduz, Nangahar, Paktia) for the construction of slaughterhouses. Data for both provincial and capital city populations suggests that the ten identified provinces capture the main urban population centres, the exception being Baghlan province with the urban centres of Pul-i-Khumri and Baghlan (see attached Table 1.1).

1.4.2 Indicative Provincial Capital City Demand

The estimated annual number of animals slaughtered in Kabul is 240,000 large ruminants and 1,000,000 small ruminants. This gives an annual figure of 68,000 mt of red meat, based on carcase weights of 200 kg and 20 kg for large and small ruminants respectively. This result in an indicative annual per capita consumption of 20 kg, based on a city population of 2.5 million, This per capita consumption figure should be treated with caution but serves to give a basis for estimating provincial urban capital city demand for red meat.

Based on an annual per capita consumption figure of 20 kg, Kabul would have an annual demand for 50,000 mt, and Herat, Kandahar, and Mazar-e-Sharif (including Kholm) would each have a potential demand for red meat in excess of 6,000 mt. This potential demand is in relation to a potential throughput of the proposed modular slaughterhouse of 10,800 mt. To justify the development of a slaughterhouse, with the proposed capacity, there would need to be a demand for meat beyond that of the immediate city population. Such a demand could be met from the proposal to slaughter some of the surplus 'off take' from adjacent 'catchment' provinces for the export of chilled carcases to Kabul or in the case of Herat, Iran[2].

1.4.3 Indicative Provincial Supply

Indicative provincial potential supply figures are based on the National Livestock Figures prepared by FAO in 2003. It is recognised that these figures do not include Kuchi livestock numbers or the numbers of imported large ruminants particularly from Pakistan and Indian. Estimated supply figures are based on the FAO survey and assume 'off take' figures of 15 percent and 25 percent for large and small ruminant herds, respectively. It is assumed that 50 percent of the potential 'off take' from catchment provinces would be available for the proposed slaughterhouses. Again these estimates should be treated with caution but serve to indicate a potential supply of animals for the proposed slaughterhouses

1.4.4 Proposed Slaughterhouses

Kabul
Kabul city is a known importer of live animals from adjacent catchment provinces and Pakistan and India. The annual throughput of 10,800 mt of red meat from the proposed two modular slaughterhouses would meet about 40 percent of the indicative Kabul city demand of 50,000 mt of red meat per year.

Herat
To meet the potential demand for a slaughterhouse in Herat, the supply of animals could be met from the 'off take' from Herat province and in part from the adjacent catchment provinces of Badghis and Ghower. The surplus to the urban city demand would require the further development of an export market, for chilled carcases, to Iran.

Kandahar
The demand for a slaughterhouse in Kandahar could be met in part from the 'off take' from the adjacent catchment provinces of Helmand and Uruzgan.

Mazar-e-Sharif
The proposed slaughterhouse at Mazar-e-Sharif (Balkh province) could draw on the adjacent catchment provinces of Faryab, Sar-e-Pol and Samangan, It is proposed that the surplus to the urban city demand could be transported to Kabul as chilled carcases. It is well recognised that currently significant numbers of live animals are transported to Kabul from the Northern provinces of Balkh and Kunduz.

Jalalabad
The estimated 'off take' in Nangarhar province would almost meet the city demand of the proposed slaughterhouse in Jalalabad and this is before account is taken of the supply from the importation of large ruminants from Pakistan and India. Surplus meat to the urban city demand could be transported as chilled carcases to supply the Kabul city demand.

Kunduz
Similarly, any proposed slaughterhouse located at Kunduz would draw on the substantial 'off take' from Badakhshan and Baghlan, and the surplus to urban city demand could be transported, as chilled carcases, to Kabul.

[2] See An Overview of the Livestock Sector and Livestock Marketing in Afghanistan, March 2008.

Other Provinces Proposed by MAIL

It is suggested that in the provinces of Ghazni, Parwan, and Paktia, neither the city demand nor the provincial supply are sufficient to justify the construction of a slaughterhouse of the capacity envisaged with the modular slaughterhouse. Currently, much of the surplus 'off take' from these provinces is transported, as live animals, to Kabul to meet the city's demand for red meat.

Table 1.1: Estimates of Supply and Demand for Red Meat in Selected Provinces.

Main Province			Population \1			Indicative	Indicative
	Catchment Provinces \2	Capital City	Capital City (No)	Province (No)	Urban Percent (%)	City Demand \3 (MTs Meat)	Provincial Supply \4 (MTs Meat)
1	Kabul *	Kabul	2,536,000	3,138,100	81%	50,726	3,232
2	Herat *	Herat	349,000	1,578,200	22%	6,980	11,442
	Badghlis	Qal'eh-ye Now	12,000	429,500	3%	240	2,879
	Ghower	Chaghcharan	5,700	598,600	1%	114	969
	Subtotal					**7,334**	**15,290**
3	Kandahar *	Kandahar	324,800	1,011,700	32%	6,496	7,085
	Helmand	Lashkar Gah	35,900	799,000	4%	718	5,721
	Uruzgan	Tarin Kowt	5,500	303,600	2%	110	5,187
	Subtotal					**7,324**	**17,993**
4	Balkh *	Mazar-e-Sharif	300,600				
		Kholm	40,800	1,096,100	31%	6,012	5,383
	Faryab *		67,800	858,600	8%	816	3,595
	Sar-e-Pol	Sar-e-Pol	24,900	482,900	14%	1,356	1,765
	Samagan	Aybak	24,000	334,800	15%	498	1,751
	Subtotal					**8,682**	**12,494**
5	Nangahar *	Jalalabad	168,600	1,289,000	13%	3,372	11,680
6	Kunduz *	Kunduz	117,500	851,300	14%	2,350	6,625
	Badakhshan *	Feyzabad	27,200	823,000	3%	544	6,765
	Baghlan	Pul-e-Khumri	87,400			1,748	
		Baghlan	56,200	779,000	18%	1,124	3,945
	Subtotal					**5,766**	**17,335**
7	Ghazni *	Ghazni	48,700	1,062,600	8%	974	4,156
8	Parvan	Charikar	46,600	573,100	8%	932	5,232
9	Paktia *	Gardiz	20,000	477,500	4%	400	3,462
	Subtotal					**2,306**	**12,850**
Country Total				**23,575,900**			

Source: Slaughterhouse Pre Feasibility Study Estimates, September 2008.

* MAIL, General Directorate of Livestock and Veterinary Services, Livestock Master Plan, 2008.
Proposed provincial slaughterhouse locations.

\1 Source: Afghanistan, Central Statistics Office, 2006.

\2 Adjacent provinces with surplus 'off take' livestock numbers (Ref A).

\3 Indicative demand is based on an annual per capita consumption of 20 kg red meat, in the provincial capitals and related to slaughterhouse capacity (see below).

\4 Assumed 'Off Take' levels: large ruminants: 15%
Small ruminants: 25%
Large ruminants: average carcass weight (Kg): 200
Small ruminants: average carcass weight (Kg): 20
Catchment Provinces assumed supply as a percentage of estimated 'off take': 50%
Proposed slaughterhouse capacity: Large ruminants (no per year) 36,000
Small ruminants (no per year) 180,000
Large ruminants (mt per year) 7,200
Small ruminants (mt per year) 3,600
Total red meat (mt per year) 10,800

A Ref: An Overview of the Livestock Sector and Livestock Marketing in Afghanistan, Thomson, March 2008.

1.5 RELEVANT POLICIES AND REGULATIONS

The principle policies the slaughterhouse would be operating under are the policies of the Afghan government as reflected in the Agricultural Master Plan for a private sector driven economy and development model. Such a model would be an argument for a lease purchase form of contracting, giving a clear signal to the private sector that this project is trying to overcome some of the imperfections in the market but that the government has absolutely no intention now or in the future to be responsible for slaughterhouses.

The regulations that are relevant during planning and the construction of the slaughterhouses are:

- Urban planning regulations,
- Environmental Impact Assessment Regulations (Gazette 939 10th of March 2008, stipulating that each industry should have an EIA and do everything possible to mitigate negative effects of the planned economic activities,
- Environmental Law (Gazette 912, 25th of January 2007),
- Building regulations, (not clear which and under whose supervision),
- Law for the protection of historic and cultural properties (Gazette 828 of 20th of May 2004).

The regulations that are relevant to the operation of the slaughterhouses are:

- Veterinary law, stipulating the requirements for pre- and post-mortem inspection and sanitation of the slaughterhouse (currently in revision),
- The various tax and business licensing laws of municipalities.

1.6 INSTITUTIONAL FRAMEWORK

1.6.1 Introduction

Before talking about public-private partnerships it is important to realize that there are numerous areas in which public-public collaboration in certain issues has to be developed and the responsibilities and competencies of the various public bodies has to be more clearly defined. Some examples of areas of uncertainty where there are diverging opinions between the various state entities are:

Land Ownership
Over the years, different systems of land entitlement have been in existence and the country is now left with the problem of how to harmonize the customary land rights into a nationally acceptable system. In the first years of the transitional government of Afghanistan, the government of that time did not tackle the land issue and large-scale land grabbing has changed, maybe not the official map, but definitely the map as people in the field experience it.

Food Safety
Currently 3 Ministries (MoPH, MoC, MAIL) feel responsible for this issue. It is important for public health and also the future of WTO accession that this issue is resolved. Discussions have so far not lead to an acceptable system for all parties. It is likely that also in Afghanistan, as in many other countries, the responsibility for food safety will be vested in an inter-ministerial agency.

Private Sector Development
Besides Ministry of Commerce, AISA, EPAA and MAIL have a private sector development department. This can lead to confusion and frustration on the side of potential investors, who want a one stop solution to all their investment issues.

1.6.2 Stakeholders

In the following section an overview will be given of the various stakeholders in both the public and private sector involved in the slaughter and meat sector.

Public Sector

Although there is usually only talk of Public Private Partnerships, there is clearly also a need for Public-Private, if not partnership, then at least collaboration. One such area is food safety assurance. Usually veterinarians claim this area for the veterinarians, whereas the public health sector contests that the person responsible for the production can also be the one responsible for the guarantee of safety of the finished product. Another point where collaboration is required is between city planning within MoUP and Municipalities and in this case the private sector development department of the MAIL. Ownership of land does not mean that one can decide without consultation what to do on this land.

An overview is given in Supporting Appendix Annex 2.1, of the various public sector stakeholders together with their role within the project and their future function in relation to the proposed construction of slaughterhouses.

Private Sector

At all levels in the value chain private sector operators are present and required to reach maximum benefits and value addition to the live animals being slaughtered.

Livestock Farmers

Farmers are usually not organized and deal individually with traders. The old symbiosis between Kuchi and sedentary livestock farmers has disappeared in most places. This collaboration was important for risk reduction (part of Kuchi animals with sedentary livestock keeper and vice versa), a guaranteed source for fattening stock for the sedentary livestock farmer and of grain and bought grazing in orchards for the Kuchi. Little is being done to strengthen the collaboration between livestock keepers. One possibility would be through the increasingly popular watershed management programmes, in which grazing management is an important component.

Butchers, Hides, Skins and Intestine Traders

These traders are all organized in associations, which are registered with the Craftsmen and Traders' Union. This Union holds a registration with the Ministry of Justice, whereas the associations are registered with the Union and cannot be considered official legal entities. Of all the associations visited none had statutes or could give a clear picture of their objectives. In Supporting Appendix 2 Annex 2.2 an overview of the butchers' associations visited with their membership is given.

Some of the larger members of the associations have their business also registered with AISA as a commercial enterprise. This is especially in the case of the hides, skins and intestine traders. This leaves one with the impression that the associations have members who do not really need the association to do their business or gain access to facilities as they have these already. This is another aspect of membership which makes the associations not very likely to be able to operate with a common goal!

1.6.3 Public Private Partnerships

Every government ministry has certain common good responsibilities, which it can either try to fulfil itself or leave to the private sector to deal with, without surrendering final responsibility for these common goods. In the case of slaughterhouses and further processing of by-products, the common interests of public health and environmental protection are government responsibilities. It should ensure that private actors comply with the necessary measures and regulations to safeguard public health and to protect the environment. In many countries there has been a gradual progression from small-scale slaughtering in or near butcher shops or at homes, to a situation where, especially in urban areas, slaughtering has been brought into municipal / public slaughterhouses as a way to safeguard especially public health. Generally such municipal / public slaughterhouses have been taken over by the private sector and the government remains only with a controlling task.

In this project, cognisant of the government's overriding policy of private sector driven economic development, the choice is to develop a so-called Public Private Partnership (PPP), in which the government's common good responsibilities are being combined with private financial interests. In this approach there is a need for clear agreements between the public and private partners, especially to safeguard the public interests in case these might clash with the financial interests of the private partner. An example of such a dilemma is the government intended investment in the development of slaughterhouses to take the slaughter of animals off the street and into a slaughterhouse providing service slaughter. The private operator, on the other hand, might have more lucrative options for the expansion of his business away from service slaughter. In such a situation the contract should be giving the answer as to the rights and obligations for both parties. The contract can be in the form of a long-term management rental agreement or a lease purchase contract. The second form is known in Afghanistan as "ijara" and it is stressed that this form of leasing is not uncommon. The owner of the equipment or installations sets a fixed price and whatever additional income the lessee earns, with the equipment or installation, is retained by the lessee. In the "Ijara" system there is a combination of a repayment of the principle and a payment of interest over capital, which could be considered the rental fee.

2 SLAUGHTERHOUSE FACILITY REQUIREMENTS

It is proposed to construct a number of slaughterhouse complexes on the identified site(s) which will provide facilities for:

- Livestock holding adjacent to the slaughterhouse (medium term holding – 2 or 3 days kill),
- Livestock holding within the slaughterhouse for pre-slaughter examination and inspection (short term holding – current day's kill),
- Slaughterhouse unit with slaughter facility for cattle, buffalo, sheep and goats,
- Facility for the initial treatment and short term storage of hides and skins,
- Facility for the initial cleansing, treatment and short term storage of green offal,
- Storage and disposal of solid organic waste (animal dung), and
- Storage, treatment and disposal of waste water from the whole site.

The total area of any site will vary according to its location and the land available but will be based on an area of approximately 1.5 – 5.0 hectares (Kabul D18 = 2.75 hectares). The site layout at the Kabul District 18 location is depicted in the schematic overlay of the satellite imagery in Supporting Appendix 1, Annex II. The site layout will depend upon the actual dimensions of the final approved site(s). The proposed slaughterhouse complex is shown in Annex I.

2.7 PRE – SLAUGHTER LIVESTOCK HOLDING AREA

This will be a covered area approximately 20m x 10m (200m^2). Individual pens will separate different groups of animals and animal drinking water will be available. Adequate drainage and removal of organic waste will be provided. Pre-slaughter health examinations will be conducted by MAIL veterinarians to ensure freedom from clinical disease at the time of slaughter. One pen will be designated as an ISOLATION area for animals deemed UNFIT for slaughter.

2.8 SLAUGHTERHOUSE UNIT

It is proposed that the slaughterhouse will be based on a 'modular' unit which will allow expansion based on the extension of the building and equipment contained therein. The modular concept will allow for replication on additional sites without the need for re-design. This modular concept will enable a doubling of capacity by replicating the unit on the same site. The design will be based on a Steel Framed Single Span structure with insulated cladding externally and comprising the requisite number of bays to provide the required operating space. Internal cladding will provide a hygienic operational environment.

2.9 HIDES AND SKINS BUILDING

This facility will be 10m x 10m (100m^2). Running water and drainage will be provided and the waste water will be ducted to the on-site waste water treatment facility. This area will be used for initial treatment and short term storage of hides and skins.

2.10 INTESTINES AND CASINGS BUILDING

This facility will be 10m x 10m (100m^2). Running water and drainage will be provided and the waste water will be ducted to the on-site waste water treatment facility. Solid organic waste will be collected and transferred to the on-site solid waste storage. This area will be used for initial treatment and short term storage of intestines and casings.

2.11 SITE SERVICES BUILDINGS

Site services buildings comprise the following: (a) electrical control equipment, (b) workshop and storage, (c) generator and refrigeration equipment, (d) deep well equipment including pumps, etc, (e) water tower with storage tank (10 m^3), and (f) incoming water treatment equipment.

2.12 ORGANIC SOLIDS STORAGE AREA

This area will be used for the storage of solid organic waste derived from the livestock holding areas, the slaughterhouse unit and the guts and casings building. Organic waste will be removed from site on a regular basis

2.13 WASTE WATER STORAGE AND TREATMENT

This area will be used for the storage of solid organic waste derived from the livestock holding areas, the slaughterhouse unit and the guts and casings building. Organic waste will be removed from site on a regular basis.

2.14 LIVESTOCK HOLDING AREA

An area (1 hectare approx) adjacent to the slaughterhouse will be identified as a livestock holding area for animals intended for slaughter during the following 2-3 days. Drinking water should be available for the animals on this site. Details are shown in Annex LS I.

3 DESCRIPTION OF THE SLAUGHTERHOUSE FACILITIES

The slaughterhouse unit will be based on a building of 30m x 20m unit (600 m^2), the skins and hides primary treatment building will be 10m x 10m (100m^2), and the intestine and casings primary treatment building will be 10m x 10m (100m^2).

The daily throughput, based on an 8 hour working shift per day, is projected at: (a) large ruminants (cattle and buffalo) 90 to 100, and (b) small ruminants (sheep and goats) 480 to 500.

3.1 STRUCTURE

The structure will consist of a steel framed single span building comprising 6 x 5 metre bays each 20 metres wide, with insulated cladding of walls and roof with skylight windows in the roof and walls. The floor will be of epoxy coated concrete incorporating channel drains, with support walls to 1 metre high and epoxy coated on the inside. Internal sub-divisions will use support walls (as above) and structure insulated panels (metal sandwich composition). Details are shown in Annexes VII a and b.

3.2 OPERATION

A ‘slaughter crew’ will undertake all slaughtering and dressing. MAIL will provide qualified and designated officials to undertake pre- and post-slaughter inspection and will supervise the operation for hygienic control. It is proposed that the facility will operate initially for one shift daily (8 hours), extended operating hours or an increase in the number of shifts will increase throughput potential proportionately.

Livestock for slaughter should be presented 12 hours in advance to allow time for resting and inspection prior to slaughter and a collection service for livestock is envisaged. Finished carcasses and edible offal will be delivered to butchers using refrigerated vehicles.

Hides and skins will undergo trimming and initial segregation on site. Intestines and casings will be washed and initially graded on site.

Organic solid waste will be stored on site prior to disposal and other by-products will be stored and disposed of as appropriate. All waste water will be stored and initially treated on site before discharge or disposal in accordance with the regulations.

3.3 SCHEMATIC DIAGRAM OF LAYOUT

The slaughterhouse unit will include designated areas for: (a) live animal holding for pre-slaughter (ante-mortem) inspection immediately prior to slaughter, (b) slaughter, (c) bleeding, including the collection and storage of blood, (d) carcase dressing, (e) the initial handling of hides and skins, (f) the initial handling of green offal, (g) the handling and disposal of non edible by-products, (h) post mortem inspection of carcasses and edible offal, (i) hygiene facilities for staff and cleansing equipment and premises, (j) waste water will be ducted to the on-site waste water treatment facility. (k) detention of ‘unfit’ meat, (l) an incinerator for the disposal of unfit meat and other protein waste, (m) chillers for controlled temperature storage of carcasses and edible products, (n) dispatch bay for carcasses and edible offal, (o) accommodation for staff amenities, and (p) accommodation for administration. The schematic layout diagram is shown in Annex VIII.

3.4 OPERATIONAL PROCESS DIAGRAM

A schematic slaughter operational flow diagram is shown in Annex IX.

A schematic flow diagram for the site is given in Annex II.

3.5 WASTE WATER TREATMENT

A series of settling tanks with a storage capacity of approximately 400m^3 is envisaged. The facility will be designed to ensure maximum sedimentation of suspended solids during the passage and dwell time of the water in the tanks. Additional equipment will be installed to ensure that the quality of the water at discharge meets the requirements of environmental emissions regulations. All waste water from the complex will be ducted to this storage facility.

Three alternative waste water treatment options are suggested, and details are given in Annex X.

4 SLAUGHTERHOUSE SITE ASSESSMENT AND SITE DESCRIPTIONS

4.1 SLAUGHTERHOUSE SITE ASSESSMENT

Assessment Criteria	**Sites Assessed \1**										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Access Roads	5	5	5	5	5	5	5	2	-	-	-
Site Roads	0	0	0	0	0	5	0	0	-	-	-
Level Site	4	2	4	4	2	5	3	1	-	-	-
Electricity	3	?	0	3	0	0	0	1	-	-	-
Water – Well	150m	?	100m	100m	?	4 No	-	?	-	-	-
Water – River	0	?	3	2	?	4	1	1	-	-	-
Drainage	1	?	1	2	?	4	1	1	-	-	-
Waste Discharge	1	?	3	2	?	4	1	1	-	-	-
Existing Facilities	-	-	-	-	-	4	-	-	-	-	-
Total Score \2	**14**	**7**	**15**	**18**	**7**	**35**	**12**	**9**	**-**	**-**	**-**
Percent	31%	16%	33%	40%	16%	78%	27%	20%	0%	0%	0%
Comments \3	**1**	**2**	**-**	**3**	**4**	**5**	**6**	**-**	**7**	**8**	**9**

Source: Slaughterhouse Pre Feasibility Study.
\1 Sites Assessed:
1. Kabul (District 18), 2. Kabul Company, 3. Mazar-e-Sharif, 4. Kunduz (Bala Hazar), 5. Kunduz Alt II, 6. Herat (former SH site), 7 Herat Alt II, 8. Pul-i-Khumri, 9. Jalalabad, 10. Kandahar, 11. Faisabad.
\2 Assessment Criteria: Maximum 5 and Minimum 0, Maximum possible 45.
\3 Comments:
1. Kareze and burial ground, 2. Undefined site, 3. Historic site, 4. Undefined site, 5. Site ownership, 6. Prone to flooding, 7. PRT development, 8. No information, 9. No information.

4.2 SLAUGHTERHOUSE SITE DESCRIPTIONS

It has been proposed to identify a number of potential sites for the construction of modern slaughterhouses in Afghanistan.

The study has identified a number of potential sites in Kabul and some major provincial cities.

The study has uncovered some difficulties relating to ownership and control of the land at proposed sites and while it was assumed that the majority of the identified land belonged to MAIL it became apparent during our investigations that the Municipalities, Ministry of Urban Development and Ministry of Finance have indeed considerable control over development at the proposed sites.

As a result of the absence of clear records and topographical maps, it has also been difficult to positively identify many of the sites offered for our evaluation. Additionally, unauthorized land acquisitions and building has meant that even site believed to be owned and controlled by government may not be available for our development proposals.

One important finding relates to the need to expend considerable capital on site infrastructure at most of the identified sites. Indeed projected costs for site preparation, roads, drainage and electricity indicate that up to 50% of the total site investment may be for this portion of the development.

The most viable site identified is that of the former slaughterhouse in Herat. The site has extensive infrastructure including wells, roads, drainage, buildings etc and although some damage has been sustained, the site presents a realistic opportunity for refurbishment. One problem relates to ownership of the land as the current owners (MoF) are pursuing options for disposal to the private sector so the site may not be available to our project.

The sites at Kabul District 18 and Mazar i Sharif appear to offer the most straightforward building programmes with the site at Poli Khumri requiring the biggest investment in site infrastructure. The site at Kunduz city centre has many potential benefits but is located in close proximity to a historic monument.

The alternate sites at Kunduz and Herat have yet to be clearly identified and thus no definitive evaluation has been possible. Potential sites in Kandahar and Faisabad have yet to be identified.

Work has begun to build a slaughterhouse in Jalalabad with support from the US Military (PRT). However the proposal is to 'improve' the existing situation and falls someway short of the ADB proposed development.

4.2.1 Kabul (2 Sites)

Existing facilities in Kabul consist of the military slaughterhouse operated by the Ministry of Defence (MoD) and the now defunct municipality building. The military facility is estimated to process about 5 mt of meat per day for service personnel. A recent visit by the study team suggests that there is a requirement for extensive rehabilitation of the building and equipment and further that it is in the wrong location under current urban planning proposals. The municipality slaughterhouse was completely destroyed during the war and has not been replaced.

Kabul Site 1 District 18
One site has been positively identified in City District 18 and located north east of the Kabul International Airport. Road access is good and the site is level. Power lines (at present non functional) are located within a reasonable distance. The depth of the water table has not yet been ascertained. Karezes (underground water channels) are evident on the site however there is no indication of the functionality of these structures but they may interfere with the construction plans and impact on site infrastructure costs. Next to the site is a village burial ground which may encroach on the slaughterhouse site in the future.

The site offers adequate space for the location of the proposed structures and functions. The location of a suitable livestock market close to this site will be important in providing a continuous supply of animals for slaughter and to ensure efficiency of operations.

The installation of solid waste storage and of a waste water treatment facility will be critical to ensuring control of waste products and to allow discharge of water that meets the requirements of local environmental legislation. The ultimate use of treated waste water should be considered for irrigation purposes in nearby locations.

A satellite image of the site with an overlay plan is attached as Annex II.

Kabul Site 2 Company

A second site is proposed to the west of Kabul on the Kandahar Road approximately 5 km west of Company District. Despite requests to MAIL and MoUD, the site has not yet been positively identified. Annex III indicates general location and a 'guestimate' of the proposed area. Situated adjacent to the main road provides good access to the area. There is no indication of electricity power lines in the area and the nearest power would appear to be in Company.

4.2.2 Mazar-e-Sharif (Balkh)

A site has been identified to the north of the city approximately 6 km from the city centre and is located on the edge of the Urban Development Master Plan. A site 250m x 200m (5 hectares) has been 'allocated'. The site is level and has good road access. Indications are that a 'live' power line will run adjacent to the road and be completed towards the end of 2008. The water table is reported at 100 metres approximately. Infrastructure requirements will include site roads, waste water treatment facilities, and solid waste storage etc. The relocation of the livestock market to the adjacent site will be important for the efficient operation of the slaughterhouse. Annex IV shows the proposed site.

4.2.3 Kunduz (Kunduz)

The site proposed by the Municipality, is adjacent to an existing slaughterhouse close to the livestock market and city centre. The existing facility has been recently refurbished with support from GTZ but provides only the basic infrastructure. The site provides approximately 1.5 hectares and is sufficient to accommodate a re-configured slaughterhouse development. Power is available within 1 km and a small river which flows past the site could provide a source of water and a discharge point for suitably treated effluent. Annex V shows the site with existing and the proposed development. However, this sight is located adjacent to an historic monument and as such cannot be considered as a potential sight.

An alternative location was identified by MAIL situated some 14 km north of the city on the Sher Khan Bandar Road, see Annex V a. The area was indicated as a 'possible' location but there was no clear designation provided. The indicated location is opposite the Mountain Spring Dairy Plant constructed by Land O'Lakes a few years ago. As a 'finite' location was not identified, no detailed evaluation of the area was conducted. Electricity from Tajikistan was reported to run nearby and the water table was stated to be some 150 metres below ground. Security in the area is said to be 'poor'. The relocation of the livestock market to an adjacent area would be critical to the success of the slaughterhouse in this area.

4.2.4 Pul-i-Khumri (Baghlam)

The existing slaughtering facility is adjacent to the meat bazaar and consists of reasonable concrete slab with running water and drainage. The limited facility was built with money collected by the butchers' association and represents a move away from street slaughtering.

The proposed site is located 3 km north of Pul-i-Khumri and 2 km from the main road. The site identified is 300m x 200m (6 hectares) but is bisected 20% : 80% by a river bed and as a result offers two alternatives:

- The need to provide a bridge over the river bed to access and utilize the 80% portion,
- Utilize the 20% portion 300m x 50m (1.5 hectares) and locate any livestock holding area across the river.

The smaller area is adequate for our purposes and is bounded by a retaining wall to protect our site from the river. There is an electricity sub-station some 500 metres from the site and the river could provide a discharge point for our treated waste water if appropriate. There will be a requirement to provide a reasonable compacted gravel road from the existing road about 1 km distant. Details are given in Annexes VI A and B.

4.2.5 Herat

A World Bank (WB) project funded the building of a modern slaughterhouse in Heart in the late 1970s to provide a platform for the export of chilled meat from Afghanistan to Iran and beyond. The project was completed in 1978 and operated by the Heart Livestock Development Company at a low throughput until the mid 1980s. The capacity was for up to 3000 sheep per day, however at its peak, the throughput was only 400 sheep daily.

The company has ceased trading but has a large amount of assets in addition to the slaughterhouse site. The Ministry of Finance is currently undertaking a 'dispersal' of the assets including the slaughterhouse and is negotiating to discard the site (including the buildings) to the private sector. The site is currently 'owned' by the Ministry of Finance.

The site is located 12 km to the west of Herat on the main road towards the Iranian border some 120 km distant. The slaughterhouse occupies a roadside site of approximately 300m x 200m and has a 3 metre high perimeter masonry wall. Incorporation of an adjacent compound 50m x 150m (former livestock farm) would provide adequate area for an 'on-site' livestock market. The Herat city map and details of the site are given in Annex H II.

The site infrastructure, although currently non functional, contains all essential facilities, and the existing buildings, although in need of refurbishment, are sufficient to provide facilities for all requirements. Details are contained in Annex H I. Refurbishment of the infrastructures will provide everything needed to ensure a fully operational site with electricity, drainage and waste water treatment, livestock holding and sufficient space for expansion in the future.

A series of alternative sites in a location south of Heart between the two main routes to the south were visited. The area indicated is approximately 1.5km by 1 km and is located on both sides of the Herat River and bounded by reasonable roadways on all sides. The provincial agriculture director indicated that almost any area within the location could be available although there are a large number of 'developments' within the indicated boundaries.

The river bed was (on the day of the site visit) totally dry, however there is clear evidence that the river is extensive and when in peak flow will occupy the majority of the area between the two banks and roadways. The elevation difference between the roadway at the top of the bank and the riverbed is no more than 1 metre and in some areas the roadway is actually lower than the river bed There is clear evidence of silting on the proposed sites and the presence of 'cutaways' suggests strong current flow along this riverbed.

The whole area is liable to flooding and as such will not be a suitable site for construction.

4.2.6 Jalalabad (Nangahar)

MAIL has been unable to provide any information relating to the reported activities in Jalalabad. However, contact with the PRT of the US Military has provided the following details. The location of the proposed slaughterhouse has not yet been clearly identified. PRT will construct a slaughter house some 50 metres by 40 metres comprising a concrete slab with drainage, painted masonry walls and a steel roof over (interestingly some of the dimensions are in feet and suggests a smaller structure). The building will be 5 metres high to the wall tops. There is provision for overhead hanging of carcases, slaughter equipment, animal holding pens and blood collection. A generator and electric lighting is proposed as are a well and pumps together with water heaters etc. There is no evidence of facilities for processing skins and intestines or the treatment of waste water other than a septic tank with a capacity of $8m^3$. The facility will slaughter both cattle and sheep although no indication of throughput has been given. The budget information available is incomplete but US$ 300K seems to be the base figure.

4.2.7 Kandahar (Kandahar)

A new municipality slaughterhouse was constructed by UNDP in 2005/6 under the urban development programme, with a capacity of between 300 to 600 small ruminants per day depending on the number shifts operated. Recent political interference has seen a significant decline in the output from the facility.

No proposed site information was received from MAIL as part of the current study.

4.2.8 Faisabad (Badakshan)

It is understood that there are no significant slaughterhouse facilities in Faisabad or the nearby town of Baharak. It is recognised that there is only a seasonal ‘off take’ in the province of Badakshan that would be unable to support a slaughterhouse of the size proposed. However, the proposed facility at Kunduz would be well placed to handle the seasonal ‘off take’ and the surplus to the Kunduz city requirement could be transported to Kabul as chilled carcases.

5 REGULATIONS

5.1 PUBLIC HEALTH / INSPECTION

All activities will be governed by The Afghan Veterinary Service Act of 1996 and it's subsequent revisions proposed for 2008. All livestock will undergo a pre-slaughter health examination to ensure absence from clinical and / or contagious diseases which might constitute a risk to public health. All carcasses and offal will be inspected immediately following slaughter and dressing to identify any evidence of disease either current or past which might pose a risk to public health. Any product identified as contaminated or showing any pathological condition which might pose a risk to public health will be seized and destroyed in accordance with the current veterinary regulations.

All such inspections and examinations will be carried out by a suitably qualified, trained and authorized official of MAIL's Directorate of Animal Health and Production.

5.2 ENVIRONMENTAL

All proposed slaughterhouse sites will be screened to avoid infrastructure development on any site designated as a protected area either under the Environment Law (No 912 of 2007, Articles 39-41) or under the Law on Protection of Historical and Cultural Properties (No 828 of 2004, Articles 7, 9-12, 21), irrespective of current ownership of such sites.

All proposals for slaughterhouse development will be submitted at design stage for approval by the National Environmental Protection Agency (NEPA) in compliance with the Environment Law (No 912 of 2007) and the Environmental Impact Assessment Regulations (No 939 of 2008). Each proposed slaughterhouse development will be described in detail in a Screening Report, in the format specified in Appendix 1 of the Administrative Guidelines for the Preparation of Environmental Impact Assessments (NEPA Executive Order No. 1/87 dated 3 June 2008).

All proposed slaughterhouses will be designed and operated to avoid the wasting of recoverable solid and liquid materials (paunch manure, meat, fat, blood, bone) and the design will include an integral wastewater treatment facility capable of meeting pollution standards for discharges which comply with interim national standards to be agreed with NEPA, covering chemical and microbiological quality (including total biochemical oxygen demand (BOD), pH, suspended solids (SS), total nitrogen (TKN) and total Phosphorus (P).

6 MANAGEMENT AND OPERATIONS

6.1 FEASIBLE AND VIABLE PPP OPTIONS

An inventory was made of the various options as to how the slaughterhouse could be managed and operated. The options for it being run by Government or Municipality were both rejected, because these go against the government's economic development policy which is a private sector driven economic development. Outright purchase with the current market credit interest rate of 15% does not seem to be attractive for the private sector as the financial models show a 20% FIRR, which leaves too little margin for risk mitigation. It should be said though that the financial models were only designed to cover service slaughter at 1 shift capacity and not as a double shift or a combination with private trading of meat and/or carcasses by the entrepreneur with much higher returns per animal slaughtered.

The slaughterhouse should serve the butchers' interest and provide a paid slaughter contract service. The operation and management of the slaughterhouse could be by either a private entrepreneur, bound to engage in service slaughter or by the butchers themselves. The option of the butchers themselves operating the slaughterhouse is not recommended since the Butchers' Association is not a legal entity and does not have the management capacity to run a slaughterhouse for their members, unless it is run with extremely close supervision by an outside group and with hired capable management staff in the slaughterhouse. The butchers' association is registered with the Union of Craftsmen / Traders National Union of Afghanistan, which is a legal body registered with the Ministry of Justice under the political parties, associations and civil society organizations act.

In the following table the various feasible and viable options are given in a schematic way with an analysis of the strong and weak points of these options.

Option 1: Tender for a Private Operator			
Form	**Strong Points**	**Weak Points**	**Risks**
Tender for a private operator, management contract with MAIL for 3*5 years; depending on MAIL's intentions the private operator might be given right of first refusal in case of outright sale after 15 years. Service slaughter for interested butchers at a commercial rate.	Opportunity to select entrepreneur with best business development plan, giving the biggest impetus to the development of the sector. Best chances of profitability of undertaking with a private entrepreneur.	Unless stipulated in management rent contract little say for the butchers. Not certain whether there will be a conducive link with existing intestines and hides and skin traders and how these sub-sectors will develop in the new situation of slaughterhouses with ancillary facilities.	In case private entrepreneur develops meat business which requires the full capacity of slaughterhouse there is no mechanism other than rent contract to make him continue the service slaughter facility for other butchers. Butchers might not accept the cost of slaughter in the privately run slaughterhouse.

<u>Possible mitigation:</u> a "smart" management rent contract that regulates access to slaughter facilities by third parties, butchers and/or hides, skins and intestine traders/processors

A management board of the slaughterhouse in which entrepreneur, MAIL, butchers' association and possible representatives of hides/skins and intestines traders are represented

Premium prices for intestines and hides/skins and initially only cost price for slaughtering, increasing enforcement of regulations in coverage area of slaughterhouse

Option 2: Management Contract with Butchers' Association (with Annual Service Fee)			
Form	**Strong Points**	**Weak Points**	**Risks**
Management rent contract with butchers' association with paid slaughterhouse staff as employees of association.	Butchers feel ownership of installations and can convince colleagues to use slaughterhouse. Possibility for the butchers to add value themselves to hides/skins and intestines so as to reduce price to be asked for service slaughter.	Associations have extremely little to no management experience to run such an enterprise. Not really a reason present for butchers to cooperate with one another as they operate in certain geographic areas as	Association in business has a conflict of interest between the interests of members and its own interest in running the slaughterhouse. Operation might falter due to lack of working capital.

		competitors. No national butchers associations' umbrella organization so different associations in different locations competing with one another. In its current legal form a non for profit organization without assets.	Mismanagement and failure.

Possible mitigation: Butchers' Association to form a commercial joint stock company, in which their members are the sole shareholders with the task to run the slaughterhouse. Capitalization of this company through shareholding, linked to access to the slaughterhouse and paid for by the members Butchers' association to change into a cooperative/joint stock company itself for the sake of running the slaughterhouse and ancillary installations

Option 3: Lease Purchase Management Contract with Entrepreneur			
Entrepreneur takes out a lease purchase contract, which stipulates that he should enter into a contract with the butchers' association; hides/skin and intestines access to be arranged by the entrepreneur.	Butchers' Association have a strong say in how the operations are conducted. Hides/skins and intestine trader gets guaranteed access to better raw material and proper processing facilities.	Too much service slaughter might impede entrepreneur's business development plans. With too little of the business plan being executed the price of service slaughter might go up.	Butchers' association might interfere too much in business of entrepreneur. Many small butchers might lose their pre-financing from the various hides and skin/intestine traders and have to stop their business

Possible mitigation: annual contract between entrepreneur and butchers' association stipulates a ceiling on service slaughter in numbers and time, compliance with the contract monitored by a Steering Committee?

Develop systems for working capital and investment loans to butchers, preferably through a sector linked financial institutions, so that butchers can independently operate and work on improving their butcher shops.

6.2 ASSESSMENT OF OWNERSHIP / MANAGEMENT ALTERNATIVES

6.2.1 The Contract Form

The first choice of contract form would be between a long-term management contract (with an annual service fee) and a long-term lease purchase management contract. A long-term management rent contract would require less capital from the candidate. But due to the ownership remaining with the government, it would inhibit any additional private sector investment. At the end of the long-term agreement the government will have a 15 year old slaughter facility, which either they can sell outright at that point or for which they can seek a new management contractor.

A lease purchase contract has an Afghan equivalent, called “ijara”. The owner gives his asset for a fixed price to someone to use it and the ownership of the equipment might be transferred after an agreed period. In the case of the slaughterhouse this contract form would give a better chance for additional investment. The land would probably remain in the hands of the government for which an annual rent will be required, but the installations and equipment will become the property of the investor. This implies that that any additional development on the site will also automatically become the property of the investor. It is expected the operation and maintenance will be at a higher level, in anticipation of future ownership. Another important issue from a national economic point of view is that the treasury will, in this case, get the whole ADB grant back, whereas in the scenario of the long-term management (rent) contract only the rent value, after the contract expires, will be returned to the Government. Additional investments might be needed, which the Government would have to finance, before the slaughterhouse would be ready and attractive again for a new management (rent) contract.

From the above it can be concluded that for both the government and the operator, the lease purchase contract option is the most desirable.

6.2.2 The Chosen Operator

The choice is between the Butchers’ Association and a private entrepreneur. The Butchers’ Association is not a legal entity, but registered with the Craftsmen and Traders National Union of Afghanistan, which is a legal organization registered with the Ministry of Justice. This means that a contract can only be signed by the Union. The statutes of the Union define it as a not for profit organization, but is mandated to promote the business of its members. This means that the slaughterhouse can only be run on a service basis. Both the Union and the Association in their current forms do not have the management and financial capacity to successfully run the envisaged slaughterhouse operations and would either have to partner up with a private entrepreneur or form their own shareholding company with the members as shareholders. The latter proposal would however create problems for the Union because of the conflicting interests of its members. For example, the new enterprise would want to add value itself to intestines and hides and skins, thereby competing with the casings and hides and skins associations.

From the above it can be concluded that under the current state of affairs, a private company/entrepreneur is the most likely candidate to enter into a contract with the Government for the running of the slaughterhouse. A clear agreement would have to be reached as to how the company/entrepreneur would interact with the butchers.

6.2.3 Overseer of the Contract on Behalf of the Government

MAIL has its private sector development department. The major role of this department is to work on the privatization of government assets in the agriculture sector and to support the private sector wherever it can. It does not necessarily have the manpower and/or skills to oversee the use of government owned productive assets. AISA has its Industrial Parks Development Department with expertise on how to support industrial development, find investors, identify potential markets, and create synergies between the various partners. It needs to be critically reviewed whether MAIL on its own would be the best option for this oversight role. An alternative would be a joint approach between MAIL and AISA to enter into a management contract arrangement to oversee the contract.

6.3 RECOMMENDATIONS ON MANAGEMENT CONTRACTS AND CLAUSES

6.3.1 Tender for Management Contract

The project will call for proposals for the management of the slaughterhouse and other facilities before the actual slaughterhouse will be constructed so as to give the winner of the tender the chance to combine his/her ideas/investment plans with the project's plan for the slaughterhouse and its "peripherals". The tender document will give a full description of the facilities that will be constructed with dimensions and capacity. It will give some basic figures on the expected throughput for service slaughter and will explain clearly that the premises can only be used for slaughter and that the incumbent should reserve a time slot to be agreed upon, between him/her and the Butchers' Association, for service slaughter. The business plan should be developed for at least the first 5 years, preferably for the full 15 years of the contract. The contract will have a mutual option for reconsideration every 5 years. At the end of 15 years and after satisfactory performance as per the lease contract, the installation will be transferred in the name of the company that ran it for the 15 years.

The proposed criteria for scoring the proposals could be:

- Previous experience in the meat and/or livestock sector (10 points),
- Number of years the company has been in business (X year*0.25 with a maximum of 5 points) and the capital base (balance sheet value) of the company (5 points),
- Quality and spin off of the proposed business plan outside the obligatory service slaughter in terms of expected effect on the improvement and consolidation of the meat sector, increase in value addition and synergy with other actors in the field (40 points),
- A sound plan as to how the service slaughter will be combined with the intended business plan activities, to be prepared in collaboration with the local butchers' association as a partner and signed for approval by this association (20 points),
- Qualifications, experience and skills of the proposed management team (20 points), and
- References from former customers, trade organizations and trading partners (5 points).

6.3.2 Management Contract with Clause

The spirit of the lease purchase contract should be in line with the objective of MAIL to support the private sector to develop slaughter capacity in suitable slaughterhouses:

- Private sector driven, but responsible for environment and public health (and animal welfare), in the meat sector, and adding maximum value to Afghanistan produced raw materials of animal origin.

The Lessee will be held fully responsible for the maintenance of the buildings and installations. The Lessee will be required to show proof of insurance. All operating and maintenance expenses are to be covered by the operator/contract holder. The operator/contract holder will at all times give access to the premises to officials of MAIL thereto authorized.

The Lessee will agree to use the premises for their intended purpose, namely the slaughter of animals. The Lessee will agree, also, to the slaughter of a maximum number of animals per day as service slaughter for individual butchers and outside traders and agree on temporary chilled storage, of not more than 3 days per carcass, and delivery to butchers' shops in a cool truck. He will enter into an annual agreement with the Butchers' Association regulating when and how these animals for service slaughter will be presented, how they will be identified, and what the service charge will be, bearing in mind that, in principle, intestines and the non edible offal will not leave the premises and have to be compensated for by the operator.

The Lessee agrees to abide by all mitigating measures agreed upon in the EIA and do the utmost to guarantee public health through the application of a thorough Good Hygiene Plan. He will strive to continuously improve the quality management system and eventually be able to certify this to the then valid standard (currently e.g. ISO 9001/2000 and ISO 22000/2006)

MAIL agrees to limit its involvement with the slaughterhouse to the compulsory hygiene inspections of premises, animals' pre and post mortem veterinary inspection and function as a monitor of the agreement between the Butchers' Association and the Lessee.

6.3.3 Operations

The operator of the slaughterhouses will make an agreement with the Butchers' Association as to the time animals will be brought for slaughter. It is foreseen that most animals will be brought to the slaughterhouse the day before, identified and passed through a pre-mortem inspection. After having rested and been inspected, the animals for service slaughter will be slaughtered, the external identification been exchanged for a carcass identification and carcasses stored in the cold room from where butchers can collect the carcasses as they are required. An agreement will be reached on how the service slaughter will be paid. One way of payment would be for the butchers to surrender the intestines and the skin so that in future this offal will not be removed from the premises other than with an authorised specialized dealer/processor.

The slaughterhouse will develop a delivery system for the carcasses to the butchers' shops in its cool truck. It may be possible for the truck to return bones to the slaughterhouse so that a bone meal plant can be developed to avoid the bones creating environment waste.

In the time not allocated for service slaughter, the Lessee can concentrate on the slaughter of his own private trade animals or another contract slaughter for larger scale (export) traders. The contract between the butchers' association and the Lessee, including the service charge and the package of services, will be reviewed on an annual basis.

7 PROJECT COSTS AND FINANCING PLAN

7.1 PROJECT COST ESTIMATES

The indicative CADP costs are estimated at US$ 52.0 million, including taxes and duties of US$ 2.4 million, and physical and price contingencies of US$ 4.9 million. Specifically the base costs of the proposed livestock slaughterhouse facilities are estimated at US$ 29.6 million. These cost estimates are summarised in Table 7.1.

Table 7.1: Project Cost Estimates (US$ million)

Item			Local Currency	Foreign Exchange	Total Costs
A.	Base Costs \1				
	A	Improved Agricultural Marketing Infrastructure			
	1.	Livestock Slaughterhouse Facilities	24.6	5.0	29.6
	2.	Farm Collection and Marketing Facilities	7.5	1.9	9.4
	3.	Product Standards Laboratories	0.3	0.2	0.5
		Subtotal	**32.4**	**7.1**	**39.5**
	B.	**Project Management and Capacity Support**			
	1.	Project Management	3.2	2.7	5.9
	2.	Capacity Support	0.6	1.0	1.6
		Subtotal	**3.8**	**3.7**	**7.5**
	Subtotal Base Costs		**36.2**	**10.8**	**47.0**
B.	**Contingencies \2**		3.9	1.1	5.0
	Project Total (A + B) \3		**40.1**	**11.9**	**52.0**

Source: Slaughterhouse Pre Feasibility Study and ADB Appraisal Mission Estimates, August / September 2008.
\1 In mid 2008 prices.
\2 Physical contingencies set at 15% for civil works, 10% on equipment and vehicles and 5% on other expenditure accounts. Price contingencies computed using ADB local and foreign cost escalation factors and include provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
\3 Includes taxes and duties of US$ 2.4 million.

7.2 SLAUGHTERHOUSE SUBCOMPONENT COST ESTIMATES

The breakdown of the US$ 29.6 million allocated for the livestock slaughterhouse facilities subcomponent is given in Table 7.2.

Table 7.2: Component: Livestock Slaughterhouse Facilities (US$ million)

Expenditure Account	Kabul \1	Provinces \2	Total
A. Subcomponent Base Costs \3			
Investment Costs			
Civil Works	4,175.0	10,100.0	14,275.0
Equipment	1,267.5	3,168.8	4,436.3
Vehicles	270.0	450.0	720.0
Management Support	280.0	700.0	980.0
Subtotal Investment Costs	**5,992.5**	**14,418.8**	**20,411.3**
Recurrent Costs			
Annual Operation Costs	2,794.4	6,433.0	9,227.4
Subtotal Recurrent Costs	**2,794.4**	**6,433.0**	**9,227.4**
Subtotal Subcomponent Base Costs	**8,786.9**	**20,851.8**	**29,638.7**
B. Contingencies \4	**943.8**	**2,317.8**	**3,261.6**
Total for Subcomponent (A + B) \5	**9,730.7**	**23,169.6**	**32,900.3**

Source: Slaughterhouse Pre Feasibility Study and ADB Appraisal Mission Estimates, August / September 2008.
\1 Based on two units in Kabul.
\2 Five units to be selected from the provinces of Badakhshan, Balkh, Faryab, Ghazni, Herat, Kandahar, Kunduz, Nangarhar, and Paktia.
\3 In mid 2008 prices.
\4 Physical contingencies set at 15% for civil works, 10% on equipment and vehicles and 5% on other expenditure accounts. Price contingencies computed using ADB local and foreign cost escalation factors and include provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
\5 Includes taxes and duties of US$ 0.7 million.

7.3 PROJECT AND SLAUGHTERHOUSE SUBCOMPONENT FINANCING PLAN

The Government of the Republic of Afghanistan has requested an Asian Development Fund (ADF) grant of US$ 30.0 million to help finance CADP. The ADF grant will be used to finance 100 percent the investment costs of the slaughterhouses, 50 percent of the investment costs of the farm collection and marketing centres, 100% of the investment costs of the product standards laboratories and the recurrent costs of project management. Agribusiness will finance the recurrent costs of the livestock slaughterhouses from income generated from the slaughter fees. The Government of Afghanistan (GoA) will finance all taxes and duties.

As currently designed, the project will require co-financing of US$ 10,000 million. The project and slaughterhouse subcomponent financing plan is given in Table 7.3.

Table 7.3: Project and Slaughterhouse Subcomponent Financing Plan

Source of Funds	Local Currency	Foreign Exchange	Total Costs	%
Project Financing Plan				
Asian Development Bank (ADF Grant)	23.0	7.0	30.0	58%
Co-financier	4.6	4.8	9.4	18%
Agribusinesses	10.0	0.0	10.0	19%
Government of Afghanistan \1	2.6	0.0	2.6	5%
Project Total \2	**40.2**	**11.8**	**52.0**	**100%**
Livestock Slaughterhouse Facilities				
Asian Development Bank (ADF Grant)	5.6	16.6	22.2	67%
Co-financier	0.0	0.0	0.0	0%
Agribusinesses	0.0	10.0	10.0	30%
Government of Afghanistan \1	0.0	0.7	0.7	2%
Total Subcomponent	**5.6**	**27.3**	**32.9**	**100%**

Source: Slaughterhouse Pre Feasibility Study and ADB Appraisal Mission Estimates, August / September 2008.
\1 The value of Government land allocated for the slaughterhouses has not been included in the Government contribution,
\2 Includes taxes and duties of US$ 2.4 million included in the Government contribution.

8 FINANCIAL ANALYSIS

8.1 PROPOSED SLAUGHTERHOUSE KABUL SITE 1

8.1.1 Investment Costs

Capital investment costs for the Kabul Site 1, inclusive of physical contingencies, are estimated at US$ 3.3 million and include site infrastructure costs (US$ 0.5 million), building and waste treatment costs (US$ 1.8 million), processing equipment (US$ 0.5 million), waste treatment equipment (US$ 0.2 million), ancillary equipment (US$ 0.02 million), vehicles (US$ 0.2 million), and management support (US$ 0.1 million). Details are given in Supporting Appendix 3.4 and a summary is given in Table 8.1.

The annual finance charges associated with the capital investment costs, to be recovered under the management operating contract, assume two alternative financing scenarios:

A. **Long Term Management Contract** with an annual service fee equivalent to 5 percent of the capital investment costs (excluding site infrastructure), equivalent to US$ 139,000 per year (year 5), and

B. **Lease Purchase Management Contract** based on the repayment of the capital investment costs (excluding site infrastructure) over a 15 year period at a lease service charge of 5 percent, equivalent to US$ 267,800 per year (year 5),

8.1.2 Annual Income and Expenditure Account

For calculation purposes, the annual income assumes a daily throughput of 100 large ruminants (200 kg red meat per animal) and 500 small ruminants (20 kg red meat per animal) per eight hour shift, for 30 days per month or per ten hour shift for 25 days per month. Slaughter fees are set at US$ 12.0 and US$ 2.4 for large and small ruminants respectively. No account is taken of the potential for the additional shifts.

Direct expenses relate to the wages of slaughter men and consumables and are estimated at US$ 67,800 (year 5), to give a gross margin over turnover of US$ 882,600. Annual overhead costs (year 5), including physical contingencies of 5 percent, are estimated at US$ 320,400 and are made up of: (a) salaries and other wages (26 percent), (b) operation and maintenance costs (30 percent), (c) utilities and waste disposal costs (43 percent), and (d) administration costs (1 percent). The resulting net margin, before finance charges, is US$ 562,200.

The annual net margins, after finance charges, for the two management scenarios, are:

A. **Long Term Management Contract:** US$ 423,200 (45 percent of turnover) but with no transfer of ownership of the assets of the slaughterhouse to the private operator, and

B. **Lease Purchase Management Contract:** US$ 294,400 (31 percent of turnover) with the transfer of ownership of the assets of the slaughterhouse by year 15 to the private operator.

8.1.3 Financial Analysis

The base case financial internal rate of return (FIRR) identifies the interest rate at which the investment costs would be repaid over the 15 year period of the analysis and the financial net present value (FNPV) determines the value of the investment discounted at the opportunity cost of commercial finance taken to be 15 percent. Given the assumptions made, the investment would generate an FIRR of 20 percent representing a 5 percent margin, for risk, over the commercial opportunity cost of capital of 15 percent.

A financial sensitivity analysis has been conducted to assess the change to the FIRR with 20 percentage changes to key variables. The slaughterhouse model is particularly vulnerable, as measured by the sensitivity indicator (SI) and switching value (SV), to changes in animal throughput numbers and the proposed slaughter fee. Details of the financial sensitivity analysis, for the base case and the two management scenarios, are summarised in Annex Tables A5.A 2 and A 3.

The FIRR of 20 percent indicates that, with the proposed slaughter fees and the estimated direct and overhead cost, the management operation of the slaughterhouse can only be considered marginally attractive from a commercial point of view (the base case scenario). In order to ensure private sector participation, it is suggested that the financial charges for the long term management scenario lease purchase management scenario and should be based on an interest rate of 5 percent of the investment costs.

The net margin of US$ 423,200 representing 45 percent of turnover, for the long term management contract (scenario two) must be considered attractive and may allow for a reduction in the proposed slaughterhouse fee. A 20 percent reduction in the slaughter fee would reduce the net margin, after finance charges, to US$ 233,100 which represents 31 percent of the turnover. By contrast, under the lease purchase management contract (scenario two), the net margin, after finance charges, of US$ 294,400, representing 31 percent of the turnover, would appear commercially attractive when combined with the transfer of the ownership of the assets of the slaughterhouse.

Table 8.1: Modular Slaughterhouse – Summary of Key Physical and Financial Indicators Kabul Site 1 (District 18)

Physical and Financial Indicators	Base Case	Management Scenarios \1 One	Two
Throughput \2	**Metric Tonnes / Year**		
Red Meat Volume		10,800	
Slaughter Fee \3	**(US$ / Head)**		
Large Ruminants		12.0	
Small Ruminants		2.4	
Capital Investment \4	**(US$'000)**		
Investment Capital (Year 0)			
Site Infrastructure \5	531.9		
Buildings and Waste Treatment	1,787.5		
Equipment – Processing	522.5		
Equipment – Waste Treatment	152.7		
Equipment – Ancillary	22.0		
Vehicles	148.5		
Management Support	147.0		
Subtotal	**3,312.1**		
Working Capital	5.0		
Total Investment and Working Capital	**3,317.1**	**3,317.1**	**3,317.1**
Annual Finance Charges	**(US$ '000 / year)**		
Interest	481.2	139.0	111.2
Principal	81.0	0.0	156.6
Total	**562.2**	**139.0**	**267.8**
Income and Expenditure Account (Year 5)	**(US$ '000 year 5)**		
Turnover	**950.4**		
Expenditure – Direct Costs	67.8		
Gross Margin	**882.6**		
Expenditure – Overhead Costs	320.4		
Net Cash Margin (before finance charges)	**562.2**	**562.2**	**562.2**
Annual Finance Charge	562.2	139.0	267.8
Net Cash Margin (after finance charges)	**0.0**	**423.2**	**294.4**
Percent of Turnover		45%	31%
Financial Analysis			
Base Case (15 Year Analysis Period)			
FIRR (percent) \6	20%	-	
FNPV (US$ '000) \7	520.4	-	

Source: Slaughterhouse Pre Feasibility Study Estimates, September 2008.

\1 One: Long Term Management Contract with an annual fee equivalent to 5 percent of the capital investment costs (excluding site infrastructure),
Two: Lease Purchase Management Contract based on the repayment of the capital investment costs (excluding site infrastructure) over a 15 year period at an interest rate of 5 percent.

\2 Assumes a daily throughput of 100 large ruminants (200 kg red meat) and 500 small ruminants (20 kg red meat) per eight hour shift, for 30 days per month or per ten hour shift for 25 days per month.

\3 Informal discussions with butchers suggest that large ruminants are generally slaughtered at specialist sites, when charges and transport costs to the retail outlet could amount to US$ 7 to 10. Small ruminants are often slaughtered on site and, as a result, no costs are incurred.

\4 Inclusive of physical contingencies of 15 percent on site infrastructure, 10 percent on buildings, equipment, vehicles, and 5 percent on management support,

\5 Value of land, road access and power supply infrastructure costs, are excluded from the base case analysis as the slaughterhouse site is part of a larger industrial park development.

\6 FIRR = Financial Internal Rate of Return (discounted over 15 years).

\7 FNPV = Financial Net Present Value (discounted at 15% over 15 years).

8.2 LIVESTOCK MARKET FINANCIAL ANALYSIS

8.2.1 Investment Costs

A financial analysis of a livestock market / livestock holding area at Kabul Site 1 (District 18) has been undertaken in response to the terms of reference, but these costs have not been incorporated into the overall project costs or the slaughterhouse subcomponent costs. The capital costs of the buildings and equipment, inclusive of physical contingencies, are estimated at US$ 421,000 (buildings at US$ 405,000 and equipment US$ 16,000). Investment costs are summarised Table 8.2.

The annual finance charges associated with the capital investment costs, to be recovered under the management operating contract, assume two alternative financing scenarios:

A. **Long Term Management Contract** with an annual service fee equivalent to 5 percent of the capital investment costs, equivalent to US$ 21,000 per year (year 5), and

B. **Lease Purchase Management Contract** based on the repayment of the capital investment costs (excluding site infrastructure) over a 15 year period at a lease service charge of 5 percent, equivalent to US$ 40,500 per year (year 5).

8.2.2 Income and Expenditure Account

For calculation purposes, the monthly income assumes a daily fee for 30 days set at US$ 0.75 and US$ 0.15 for large and small ruminants respectively. The resulting annual income is estimated US$ 158,000 (year 5).

Direct expenses relate to the wages of livestock attendants and consumables that are estimated at US$ 18,400 (year 5), to give a gross margin over turnover of US$ 139,600. Annual overhead costs (year 5), including physical contingencies of 5 percent, are estimated at US$ 36,300 (year 5). The resulting net margin, before finance charges, is US$ 103,300.

The annual net margins, after finance charges, for the two management scenarios, are:

A. **Long Term Management Contract:** US$ 82,300 (52 percent of turnover) but with no transfer of ownership of the assets of the slaughterhouse to the private operator, and

B. **Lease Purchase Management Contract:** US$ 62,800 (40 percent of turnover) with the transfer of ownership of the assets of the slaughterhouse by year 15 to the private operator.

8.2.3 Financial Analysis

The base case financial internal rate of return (FIRR), given the assumptions made, investment would yield a FIRR of 23 percent representing a 7 percent margin, for risk, over the commercial opportunity cost of capital of 15 percent.

Table 8.2: Livestock Market – Summary of Key Physical and Financial Indicators Kabul Site 1 (District 18)

Physical and Financial Indicators	Base Case	Management Scenarios \1 One	Two
Holding Capacity \2	**Animal Numbers**		
Large Ruminants		250	
Small Ruminants		2,000	
Holding Fee \3	**(US$/Head/Day)**		
Large Ruminants		0.75	
Small Ruminants		0.15	
Capital Investment \4	**(US$'000)**		
Investment Capital (Year 0)			
Buildings	405.0		
Equipment	16.0		
Subtotal	**421.0**		
Working Capital	0.0		
Total Investment and Working Capital	**421.0**	**421.0**	**421.0**
Annual Finance Charges	**(US$ '000 / year)**		
Interest	88.4	21.0	16.8
Principal	14.9	0.0	23.7
Total	**103.3**	**21.0**	**40.5**
Income and Expenditure Account (Year 5)	**(US$ '000 year 5)**		
Turnover	**158.0**		
Expenditure – Direct Costs	18.4		
Gross Margin	**139.6**		
Expenditure – Overhead Costs	36.3		
Net Cash Margin (before finance charges)	**103.3**	**103.3**	**103.3**
Annual Finance Charge	103.3	21.0	40.5
Net Cash Margin (after finance charges)	**0.0**	**82.3**	**62.8**
Percent of Turnover		52%	40%
Financial Analysis			
Base Case (15 Year Analysis Period)			
FIRR (percent) \5	23%	-	
FNPV (US$ '000) \6	134.8	-	

Source: Slaughterhouse Pre Feasibility Study Estimates, September 2008.

\1 One: Long Term Management Contract with an annual service fee equivalent to 5 percent of the capital investment costs (excluding site infrastructure),
Two: Lease Purchase Management Contract based on the repayment of the capital investment costs (excluding site infrastructure) over a 15 year period at an interest rate of 5 percent.

\2 Assumes a holding capacity 250 large ruminants and 2000 small ruminants for 30 days per month.

\3 Informal discussions with butchers suggest that large ruminants are generally slaughtered at specialist sites, when charges and transport costs to the retail outlet could amount to US$ 7 to 10. Small ruminants are often slaughtered on site and, as a result, no costs are incurred.

\4 Inclusive of physical contingencies of 10 percent on buildings, equipment,

\5 FIRR = Financial Internal Rate of Return (discounted over 15 years).

\6 FNPV = Financial Net Present Value (discounted at 15% over 15 years).

9 ECONOMIC ANALYSIS

9.1 ECONOMIC ANALYSIS OF THE SLAUGHTERHOUSE COMPONENT

An economic analysis of the proposed slaughterhouse subcomponent has been under taken involving the construction of two slaughterhouses in Kabul and further buildings in five selected provinces. Constant mid 2008 financial costs have been converted to economic values using appropriate standard conversion factors (SCF) to reflect the value of land, unskilled labour and to eliminate taxes and duties. For the analysis of the subcomponent, a percentage of the project management support costs have been allocated to the slaughterhouse subcomponent costs.

Quantified benefits include:

- The incremental value of the meat (75 percent of total benefits),
- The opportunity cost of the time saved by butchers and reduced transport costs (3 percent of total benefits),
- The reduction in the damage to skins, hides and casings (10 percent of total benefits),
- The incremental value of dried blood (12 percent of total benefits).

In addition to the quantified benefits detailed above, a number of unquantified benefit can be attributed the slaughterhouse facilities. These include:

- The reduction in waste products and the resulting savings in the municipality costs of clearing such waste,
- The ability of the municipality to enforce legislation requiring the slaughtering of animals in licensed premises,
- The increased ability of butchers to comply with public health and hygiene regulations resulting in the reduction in public disease levels, and
- The job creation per slaughterhouse unit during its construction and subsequent operation requiring up to 20 slaughter men per shift and a further 20 fully time attendants.

The resulting economic internal rate of return (EIRR) has been estimated at 23 percent with the figure being very sensitive to the assumption regarding the incremental value of the meat based on the proposed slaughter fee.

Table 9.1: Economic Analysis – Base Case and Sensitivity Analysis

		Test	EIRR \1		ENPV \2		SI \3	SV \4
			(%)	Change (%)	US$000	Change (%)	Index	(%)
Base Case (15 year period)		-	23%	-	10,430	-	-	-
Sensitivity Tests								
1	Increment Value of Meat	+ 20%	30%	7%	16,776	61%	23.0	33%
		- 20%	17%	- 7%	4,085	-61%		
2	Opportunity Costs of Butchers Labour	+ 20%	24%	%	10,648	2%	0.1	956%
		- 20%	23%	%	10,212	- 2%		
3	Value of Skins, hides and Casings	+ 20%	24%	1%	11,289	08%	0.4	243%
		- 20%	22%	- 1%	9,571	- 8%		
4	Value of Dried Blood	+ 20%	24%	1%	11,484	10%	0.5	197%
		- 20%	22%	- 1%	9,372	-10%		
5	Period of Analysis							
	Decreased to 10 years	- 5 yr	18%	- 5%	4,007	-62%	ENPV decreases	
	Increased to 20 years	+ 5 yr	24%	1%	14,075	35%	ENPV increases marginally	

Source: Slaughterhouse Pre Feasibility Study, September 2008.
\1 EIRR = Economic Internal Rate of Return (discounted over 15 years).
\2 ENPV = Economic Net Present Value (discounted at 12% over 15 years).
\3 SI = Sensitivity Indicator (ratio) is the absolute value of the percent change in the FIRR, divided by the percentage change in the risk factor (a high value indicates sensitivity to the variable).
\4 SV = Switching Value (%) is the level of change in the risk factor that causes the FIRR to fall below 15%, taken as the opportunity cost of commercial capital.

APPENDIX 1: SLAUGHTERHOUSE PRE FEASIBILITY STUDY – CONSULTANTS TERMS OF REFERENCE

A-1.1 Slaughterhouse Specialist

Assignment: To develop a preliminary technical appraisal for development of slaughterhouses in Kabul, and regional cities

Employee: David M. Love

Start Date: June 22, 2008
Completion Date: August 29, 2008

Location:
Employee will be based in the Rural Business Support Project office at the Ministry of Agriculture, Irrigation and Livestock (MAIL) in Kabul. It is expected that the Slaughterhouse Specialist will make visits to various locations in Kabul and in the targeted provinces for the slaughterhouses in Nangarhar, Balkh and Bamyan.

Supervision: Employee will report to Judd Robertson (Team Leader)
Assignment Specifics:

- The identification of potential sites
- The identification of a realistic daily throughput of animals as a combination of large and small ruminants
- A preliminary design for access roads, utility connections and waste disposal measures (municipality contribution)
- A preliminary design / layout of facilities for (i) the livestock market, and (ii) the abattoir and processing building shell (public sector contribution)
- A preliminary assessment of capital investment costs and subsequent annual operation and maintenance (O&M) costs of the public sector contribution, with a view to determining the annual rent for the use of the facilities
- A preliminary assessment of the capital investment costs and the subsequent annual O&M costs of the livestock market (traders associations contribution)
- A preliminary assessment of the capital investment costs and the subsequent annual O&M costs of the abattoir and processing equipment (butchers associations contribution)
- A preliminary identification of the direct labor requirements for the abattoir (associations contribution)
- A preliminary identification of the management staffing and salaries for the abattoir (associations contribution)
- An indication of the required consultancy input for the training of staff, at all levels, for the operation and maintenance of the slaughtering and processing facility (project contribution).

Reporting:

- Provide weekly updates to the Team Leader, Judd Robertson,
- Written reports should be made on a monthly basis to Team Leader, Judd Robertson,
- Provide a draft Final report to the Team Leader one week before completing the assignment in Kabul. The draft report will be immediately reviewed and the Specialist will be required to complete the Final report before leaving Kabul,
- Before completing assignment, present findings to ADB, MAIL, and other stakeholders in a Workshop setting,
- Timesheets and expense reports shall be presented to ROP office in Kabul.

Scope of work may be widened based upon ROP's in-country staff's demands.

A-1.2 Public-Private Partnership Specialist

Assignment: Develop detailed institutional (ownership/management) requirements for slaughterhouses

Employee: Anton van Engelen

Start Date: July 5, 2008
Completion Date: August 31, 2008

Location:
Employee will be based in the Rural Business Support Project office at the Ministry of Agriculture, Irrigation and Livestock (MAIL) in Kabul. It is expected that the PPP Specialist will make visits to various locations in Kabul and in the regional cities where the slaughterhouses are projected.

Supervision: Employee will report to Judd Robertson (Team Leader)

Assignment Specifics:

- The PPP Specialist will develop detailed institutional (ownership/management) requirements for slaughterhouses (large and small models) in Kabul and regional cities.

- Assess the options that would support the preliminary concept that the land, road access, utility connections, waste treatment measures, slaughterhouse building shell, and possibly the slaughterhouse equipment be the responsibility of the Government/public sector partner and that management and operation of the livestock market, the slaughterhouse, and processing facilities the responsibility of the respective stakeholders.

- Review and discuss the full range of ownership/ management alternatives with relevant stakeholders

- Identify the feasible and viable public-private partnership options for the slaughterhouse investment

- Prepare recommendations on preferred public/private partnership model(s). These models will need to be administratively straightforward; and should the public/private partnership involve an initial large public equity investment, options for private divestment in the medium to the long term will need to be assessed.

- The PP Specialist will present a draft of his findings to the Team Leader one week before the completion of the assignment. The PP Specialist will incorporate the comments of the Team Leader into the next draft of his report and submit the report to the Team Leader before he leaves Kabul

Reporting: As above

Scope of work may be widened based upon ROP’s in-country staff’s demands.

A-1.3 Financial Analyst

Assignment: Responsible for developing a pre-feasibility study (investment, technical, operational, and institutional requirements) for slaughterhouses in Kabul and regional cities. Alternative technical / financing/ management models would be the subject of the study.

Employee: Michael Blandy

Start Date: July 1, 2008
Completion Date: August 31, 2008

Location:
Employee will be based in the Rural Business Support Project office at the Ministry of Agriculture, Irrigation and Livestock (MAIL) in Kabul. It is expected that the Slaughterhouse Specialist will make visits to various locations in Kabul and in the targeted provinces for the slaughterhouses in Nangarhar, Balkh and Bamyan.

Supervision: Employee will report to Judd Robertson (Team Leader)

Assignment Specifics:

- A separate financial analysis (income and expenditure schedule and year end balance sheets) of the municipality stake including a financing plan and funding mechanism (project contribution), as a basis for calculating an annual rent for the use of the facility by the associations;

- A separate financial analysis for the operation of the livestock market, to include; (i) a financing plan and funding mechanism for the purchase of any capital equipment, (ii) an income and expenditure schedule identifying income, direct labor costs, overhead expenditure including a municipality rental payment, and finance charges, (iii) year end balance sheets, and (iv) a financial internal rate of return calculation with sensitivity analysis for key assumptions;

- A separate financial analysis for the operation of the abattoir, to include: (i) a financing plan and mechanism to fund the purchase (leasing) of all necessary equipment (project contribution), (ii) an income and expenditure schedule identifying slaughter fee income, income from sales of by-products, direct labor costs, overhead expenditure including a municipality rental payment, and finance charges, (iii) year-end balance sheets, and (iv) a financial internal rate of return calculation with sensitivity analysis for key assumptions;

- The Financial Analyst will present a draft of his findings to the Team Leader one week before the completion of the assignment. The Financial Analyst will incorporate the comments of the Team Leader into the next draft of his report and submit the report to the Team Leader before he leaves Kabul.

Reporting: As above.

Scope of work may be widened based upon ROP's in-country staff's demands.

APPENDIX 2: LIST OF PERSONS MET

Agency	Person	Title
Ministry of Agriculture, Irrigation and Livestock (MAIL)		
	Mohd Sharif Sharif	First Deputy Minister
	Dr Aziz Osmani	CVO and Head of Veterinary Department
	Ghulam Jawad	Deputy Minister
	Abdul Latif Faqiri	Secretary to the Minister’s Office
	Ghorbandi	Director, Private Sector Department
	Rahman Habib	Senior Programme Planning Advisor
	Aatif Habib	Programme Planning Advisor
	Dr Noor Rahman	Central Veterinary Department
	Ziai Amanuddin	Livestock Strategic Advisor
Asian Development Bank		
	Allan Kelly	Project Officer CADP
	Su Chin Teoh	Natural Resource Economist
	Victor You	Senior Counsel Office
Afghanistan Investment Support Agency (AISA)		
	Said Mubin Shah	Research and Policy Director
	Simran Kaur Lohnes	Deputy Director Investor Support Department
	Abdul Salam Zahed	Director, Licensing and Investor Support
Craftsman / Traders National Union of Afghanistan		
	Norullhaq Nazir (Omari)	Vice President of AMPA
Export Promotion Agency of Afghanistan (EPAA)		
	Peter Bernhardt	Chief Senior Advisor
International Consultants and Technocrats Pvt Ltd (New Delhi, India)		
	Keshao T Gurumukhi	Team Leader
	Deepa Tripathi	Urban Planner
	Satish Kumar	Deputy Surveyor and Mapping Expert
Microfinance Investment Support Facility for Afghanistan		
	Dale Lampe	Director Operations
Municipality Kabul City		
	Eng. Ahad Wahid	Deputy Mayor
Private Sector – Kabul		
	G Hassan Naweed	President Hassan Naweed Co Ltd
	Shams	SAECC Building and Engineering Company
	Abdullah Fahim	Trading Co Ltd
	Qadir Noor	Noor Heravi Agro Group Kabul / Herat
	Mustafa Sadiq	Director Omaid Bahar Marketing / Distribution
	Merajudin	Head of Butchers’ Association Kabul
	Saftari	Chairperson Kabul Marketing Organisation
	Eng. Daud	Chairperson Hides and Skins Association
	Haji Isa and Sons	Casings Traders Afghanistan / Pakistan
	Haji Daud Mohammad	Casings Trader

Agency	Person	Title
United Nations Human Settlement Programme		
	Abdul Bari Balakarzai	National Project Manager
Pul-i-Khumri, Baghlan Province: MAIL, Municipality and Private Sector Persons		
	Sherafgan Sahrayee	Chief of Operation Baghlan (AKF)
	Abdul Satar	MAIL, Head of Animal Production (PDA)
	Anwar Shinwari	MAIL Veterinary Department, PDA
	Mir Ahmad	MAIL Veterinary Department, PDA
	Mohammed Asif	Butcher Association Representative,
	Abdul Qanagha	Hide & Skins and Casings Trader
	Various Butchers	Municipal Market
	Eng. Nezar	Municipality Urban Master Plan
	Ab. Karim Shaheen	Executive Assistant, Municipality
	Ramazani	Land Director, PDA
Mazar-e-Sharif, Balkh Province: MAIL, Municipality and Private Sector Persons		
	Dr. Moh Hashim	Director of Veterinary Department
	Dr. Moh Zaher	Director of Department for Animal Diseases
	Dr Moh Ibrahim,	Veterinarian clinic for animal
	Dr. Moh Rafiq,	Butcher Association's Municipality Controller
	Abdul Halim,	Land Officer, Department of Agriculture
	Malik Mohammad	Leader of Butcher's Association
	Katib Shams	Director of Agriculture and Irrigation
	Fayaz Mehir Ayeen	Advisor and first secretary at the Mayor's Office
	Said Kamal Sadaat	Private Sector Businessman
	Eng. Hadi	Land and Mapping Department
	Eng. Malik	Structure Department in Municipality
	Dawood	Security Department in Municipality
	Mukhim	Lease Holder Livestock Market
Kunduz, Kunduz Province: MAIL, Municipality and Private Sector Persons		
	Abdoul Wahid Aziz	Mayor of Kunduz
	Dawran Shah Pamiri	Deputy General Director, PAD
	Sayed Arzan	Finance and Administrator Officer, PAD
	Haji Mohammad Turkman	Land Officer, PAD
	Nazar Mohammad	Livestock Controller, PAD
	Jan Mohamaad	Head of the Butchers' Association
	Rais Abdul Rasul	Head of Business Chamber
Herat, Herat Province: MAIL, Municipality and Private Sector Persons		
	Noor Ahmad Hamtab	Dept Enterprise Clearance Kabul, MoF
	Abdul Karim Naqshbandi	Admin Manager, Herat Livestock Dev. Co
	Dr Fakhruddin	Livestock Dept, MAIL
	Gul Ahmad Moslem	Min of Justice, Heart
	Dr Abdul Khalil	Veterinary Director, MAIL Herat
	Eng Sher Aqa Hutak	Deputy Director of Agriculture, MAIL Herat

Agency	Person	Title
	Mayor Mujaddadi	Mayor of Herat
	Ehrari	Head of Planning, Herat Municipality
	Dr Abdul Qadar Fahkri	Regional Director, DCA

APPENDIX 3: MAIL PRESENTATION (POWERPOINT)

APPENDIX 4: TABLE OF CONTENTS FOR SLAUGHTERHOUSE SPECIALIST

APPENDIX 5: TABLE OF CONTENTS FOR PUBLIC PRIVATE PARTNERSHIP SPECIALIST

APPENDIX 6: TABLE OF CONTENTS FOR FINANCIAL ANALYST

List of Annexes