
DRAFT

***ROLE AND THE SIZE OF LIVESTOCK
SECTOR IN AFGHANISTAN***

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EXECUTIVE SUMMARY

Before war, agriculture accounted for about 60 percent of export earnings and employed 53 percent of the total labor force. The livestock products contributed 16-18 percent in the Gross National Products and about 14 percent in the exports besides 9 percent for carpets and rugs. During the war a significant portion of livestock and other assets at the government farms were destroyed and the livestock extension services including artificial insemination collapsed almost completely. In the course of relief and rehabilitation, mainly through the international agencies and NGOs, cattle, horses and camels have attained the pre-war levels while sheep, goats and poultry have increased substantially.

Economic size of the livestock sector is reviewed with a pre-war and post-war scenario. The figures of livestock population, production and prices for 1978-79 (pre-war) and 1995-96 (post-war) were collected from different sources including published, unpublished reports and personal communication with several international livestock experts and Afghan nationals working in the UN agencies and NGOs that are operating inside Afghanistan.. Total output of livestock has declined at an average rate of 5.5 percent per year during the Afghan war between 1978-79 and 1989-90. However, the livestock numbers had reached almost pre-war level by 1995-96 which indicated a positive sign of recovery of the livestock sector. An analysis of annual growth rate through the two time periods showed that overall the livestock sector had been growing at percent.

The estimation of livestock GDP at current prices showed that the Gross Value Added of livestock sector comes out to the extent of US\$ 507.85 million during 1998-99 which is 18 percent higher than what was estimated for 1978-79. This is primarily due to significant increase in the livestock numbers after the war. For example, sheep number increased from 14 million in 1978-79 to 24 million in 1998-99, goats increased from 3 million to 9.8 million and poultry increased from 6 million to 13 million. Other reason could be the inflation since 1978-79 as well as un-inflationary increase in prices of livestock products due to changing supply and demand situations. Consequently, livestock production and contribution has been increasing through the years covered in the study.

The livestock GDP at 1978-79 constant prices is also estimated. It has been found that currently, livestock GDP has been growing at the rate of 2 and a half percent per annum from 1995-96 through 1998-99. It has been assumed that given the relatively stable political situation and positive signs of recovery of the Afghan economy, the livestock GDP will grow at a faster rate. The projected livestock GDP growth rate comes out to the extent of 4 to 5 percent.

Nomads contribute significantly in the production of sheep and goats for Afghanistan. The influence of war on nomads is not clear. It seems that nomads have maintained their flock size. It may also be noted that livestock production system is mainly based on grazing in Afghanistan, which has serious limitations during the winter season

and the situation is further aggravated due to cultivation of grazing fields by the commanders, thus, posing limitations on the grazing opportunities for the livestock.

The prevailing livestock production systems in the country seem to making maximum use of the existing rangelands as well as crop by-products. Keeping in view the shortage of feeds and fodder, the FAO is leading the use of alternate feed resources through improved varieties of fodder, wheat straw treatment and mineral blocks.

Karakul sheep deserve special attention due to the importance of Karakul pelts. It is estimated that the population of Karakul sheep has been restored after the war, however, the production of Karakul pelts has been affected adversely. The magnitude of decline is said to be around 50 percent due to non-existence of dealers for the export of Karakul pelts for the last 4 - 5 years. The current production level of the pelts is proportionate to the domestic requirement.

In the absence of public sector infrastructure for livestock, FAO developed a program 'Livestock Development for Food Security in Afghanistan (ILSA)' which is in operation through five FAO Regional Livestock Offices in Afghanistan at Jalalabad, Khost, Kandahar, Herat and Mazar-i-Sharif . These offices monitor the activities of 25 implementing partners - NGOs, Contractors and Veterinary Committees. In addition, the FAO provides training at the Regional Livestock Offices as well as in Kabul, Islamabad and Peshawar.

FAO/UNDP also helped in establishing 255 Veterinary Field Units (VFUs) to carry out vaccination, deworming and treatment of sick animals nation-wide. These VFUs cover more than two-third of the districts in Afghanistan and a veterinarian (usually a graduate from Kabul University) is supported by para-vets at the districts level, while the selected farmers are trained and designated as Basic Veterinary Workers (BVWs) at the village level to carry out vaccination and simple treatments of the livestock. The livestock owners are required to pay the full cost of medications and treatments. There are plans to gradually convert all VFUs into independent private veterinary clinics. Although, the Umbrella Veterinary Services Association turns out to be the largest supplier of veterinary medicines to Afghanistan, currently it is only able to meet about 2-3 percent of the total demand. Two NGOs are producing vaccines locally against major livestock diseases while Dutch Committee for Afghanistan, German Afghanistan Foundation and FAO continue to import the vaccines.

In addition, over 40 NGOs have the veterinary services and income generation projects through poultry, bee keeping and sericulture as one of the main sectors of their operation in Afghanistan. Of these only two NGOs are working exclusively on livestock, namely Eastern Veterinary Commission based at Jalalabad (Afghanistan) and German Afghanistan Foundation based at Peshawar (Pakistan). The Dutch Committee for Afghanistan and MADERA (Mission of Aid for the Development of Rural Economies) are one of the few NGOs operating VFUs staffed with veterinarians and para-vets. These NGOs arrange veterinary medicines and vaccines for their VFUs in Afghanistan, as well, as systematic training programs for the farmers. The Pamir Reconstruction Bureau is one

of the few specialized agencies in animal health and livestock production in Afghanistan. It operates a veterinary program in the northern, central and southwestern regions through 53 VFUs including the training of paravets, BVWs and refresher courses for the qualified veterinarians. This agency has initiated milk collection, processing and marketing, bee keeping and sericulture in Kabul area, as well as, artificial insemination in cattle and improvement of fodder production in other project areas.

The extension services are, however, mainly limited to provide livestock health care. Despite the practical difficulties, improved breeding and nutrition are the areas which would need major focus in the future livestock development strategy.

Besides UN agencies and FAO, coordination and cooperation among different NGOs, the overall coordination in different sectors is, however, carried out by four NGOs namely Agency Coordinating Body for Afghan Relief (ACBAR), Islamic Coordination Council (ICC), Afghan NGOs Coordination Bureau (ANCB) and Southern and Western Afghanistan Association for Coordination (SWABAC).

As regards the future work to be carried out in the livestock sector, the World Bank and FAO have developed detailed lists of recommendations which cover animal health, nutrition, product processing, rangeland development, credit facilities, and training and veterinary education. However, while implementing these recommendations it is imperative to consider:

- Safety of indigenous livestock genetic resources against the indiscriminate crossbreeding with exotic breeds. Grouping of advanced breeders to provide quality sires for natural service.
- Assessment of farmers' needs in relation to livestock production.
- Establishment of information system on all the resources related to livestock production and health.
- Inclusion of breeding and nutrition in the farmers training programs.

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1. INTRODUCTION

In 1976-77, the total estimated human population of Afghanistan was 14 million, of which about 85 percent including about 1.5 million nomads were living in rural areas. Population growth rate was about 2.2 percent per annum. About 70 percent of the total labor force of 4.7 million were engaged in agriculture, livestock, and livestock based handicrafts. Traditionally, animal genetic resources occupy an important place in Afghan agriculture. Besides the food items (meat, milk, and dairy products) cattle provide draft power and hides, small ruminants contribute in the production of pelts, wool and hair, as well as the manure. Other livestock products include blood, fat and bones.

Before war, livestock products were estimated to comprise 18 percent of the country's domestic products and 27 percent of national flock belonged to nomads and semi-nomadic pastoralists (Barker, 1997). Exotic cattle were maintained by the government at Kabul, Jalalabad and Lashkar Gah to produce bulls for crossbreeding in the field. Artificial insemination (A.I.) services were provided in Kabul, Mazar-i-Sharif area and at some other places. Intensification of sheep production systems particularly in the north and a large scale livestock development program in the western areas were in progress. There was a full fledged institute on Karakul sheep in Kabul to enhance processing and marketing of Karakul pelts. Karakul rams for breeding were produced and distributed to farmers by the government farms at Baghlan, Mazar-i-sharif and Sheberghan. There were about 80 district level veterinary clinics in the country to provide health care in the livestock sector.

In a pre-war study (World Bank, 1978), the role of livestock in the Afghan economy has been described briefly. At that time, agriculture accounted for 60 percent of export earnings and employed 53 percent of the total labor force. From 1968-69 to 1975-76 agricultural production grew at an annual compound rate of about 19 percent, less than the annual population increase of about 22 percent. Agriculture's contribution to total GNP in 1975-76 constant prices had dropped from 65 percent in 1968-69 to 57 percent of GNP

in 1975-76 and this decline was attributed to sluggish agricultural development rather than dynamic growth of other sectors. Based on a livestock sub-sector survey (World Bank, 1979) the contribution of livestock sector in the Afghan economy during 1976-77 is summarized in Table-1.

Table 1. Contribution of livestock sector in the Afghan economy during pre-war period.

| Item | Magnitude |
|---|----------------------|
| Gross National Products (GNP) | Af 115 billion |
| Total GNP | Af 82,000 (US\$ 160) |
| GNP per capita | |
| Contribution of agriculture (including livestock & forestry) | 50% |
| Contribution of livestock | 16% |
| Contribution of handicrafts (largely woolen carpets and rugs) | 8-10% |
| Exports | |
| Contribution of livestock products | 14% |
| Carpets and rugs | 9% |
| Unrecorded export of live sheep to Iran | US\$ 33 million/year |

Source: World Bank (1979).

Since 1980 the GDP has fallen substantially because of the loss of labor and capital and the disruption of trade and transport. Much of the Afghan population continues to suffer from insufficient food, clothing, housing, and medical care. Inflation remains a serious problem throughout the country.

The war followed by civil unrest for a long period of time has resulted in heavy losses of humans, livestock, facilities, infra-structure, services and the development process as a whole. Besides losses due to mortalities, a significant portion of human and livestock population was moved out of Afghanistan. The livestock and other assets at the government farms were destroyed and the livestock extension services including A.I. collapsed completely. The left over government flocks are facing poor management.

Afghanistan can now be described as an extremely poor, landlocked country, highly dependent on farming (wheat especially) and livestock raising, particularly sheep

and goats. Economic considerations have played second fiddle to political and military upheavals during several years of war, including nearly ten years of Soviet military occupation (which ended February 15, 1989). During the disturbance period, over one-third of the population fled the country, with Pakistan and Iran sheltering more than three million refugees each. By 1995, about 1.4 million Afghan refugees remained in Pakistan and about two million in Iran. Another one million probably moved into and around urban areas within Afghanistan.

Following the end of Soviet military occupation, the overall economy of Afghanistan during 1991 is reflected in Table-2. For a detailed account of political and economic situation in Afghanistan during 1978-79 and 1989-90), the reader is referred to Ferogh (1990).

Table 2. Economy of Afghanistan after war.

| Indicator | Amount (US\$) | Description |
|---------------|---------------|---|
| Exports | 188.2 million | Fruits and nuts, hand-woven carpets, wool, cotton, hides and pelts, precious and semi-precious gems are exported to FSU countries, Pakistan, Iran, Germany, India, UK, Belgium, Luxembourg, Czechoslovakia. |
| Imports | 616.4 million | Food and petroleum products, most consumer goods are imported from FSU countries, Pakistan, Iran, Japan, Singapore, India, South Korea, Germany. |
| External debt | 2.3 billion | |

Source: ABC Country Book of Afghanistan.(http://www.theodora.com/wfb/afghanistan_economy.html).

Afghanistan is classified as having a large number of agro-ecological zones, given as high as 28 by some sources, although there is a lack of precise definition (UNDP, 1993). This variation puts the livestock into an important integral position in the small farm production systems of Afghan agriculture. The extension services are, however, mainly limited to provide livestock health care. Despite the practical difficulties, improved

breeding and nutrition are the areas which would need major focus in the future livestock development strategy.

This study aims at determining the economic role of the livestock sector in Afghanistan's economy by providing an overview of this sector, estimating the size of the sector in GDP, identifying regional differences in livestock varieties and uses, describing the types of programs and activities in support of the livestock sector; and looking at constraints faced by the sector.

2. THE ROLE AND IMPORTANCE OF LIVESTOCK

Livestock raising is common all across the country and it is an integral part of various farming systems in Afghanistan. Major livestock products are wool, hide, fat, mutton, milk and milk products (cream, butter, curd, yogurt, ghee, and cheese). The livestock and livestock products jointly constitute major income source for most livestock holders. In some areas, sheep are fattened and slaughtered in early winter for dried mutton. A detailed account of livestock and livestock products in Afghanistan is given by SCA (1993), which is summarized below to help visualize the importance of livestock in the Afghan economy.

In *Shulgara* (Balkh province) about ten percent of the farmers keep Karakul sheep which are valued for Karakul pelts. The nomads, Kuchis, usually have large flocks of Karakul sheep ranging from 300 to 1,500 sheep. They usually keep camels for transportation.

In Nejrab (Kapisa province) milk and yogurt is kept for home consumption while cheese is sold during winter. Due to importance of cheese, the farmers prefer autumn calving versus usual spring calving in cattle. A house hold with two cows is capable of producing about 8 kg of white cheese per week. Normally most cheese is made during

the first two months of lactation, thus, such farmers produce a surplus of 50-60 kg of cheese in winter and get a price equivalent to two hectare of wheat. A condensed dried milk product from butter milk, known as Qurut, is produced during summer though its economical value is lower than cheese. Whereas, the smaller flocks of sheep and goats provide pocket money to the farmer, the sale of sheep and goats in case of large flocks provides a good source of income.

In Mehterlam (Laghman province) livestock ownership is quite different from district to district. In the mountainous area of Nuristan and Dawlat Shah about 60 percent of local income is derived through livestock and approximately 65 percent of the population is involved in livestock raising which is more meaningful to them as compared to cultivation of land. The Gonapal cheese is popular in the province.

In Maydan Shar (Wardak province) almost every farming family keeps livestock including donkeys. The latter are used for hauling agricultural products to market, conveying of farmyard manure, soil and for other purposes. Large farmers usually keep a pair of oxen as well. Milk and other dairy products for home consumption are obtained from the cattle and some cash is obtained through sale of one or two calves once a while. Each farming family has two to three sheep or goats. The fattened sheep are either slaughtered for dried mutton in the early winter or if surplus, sold in autumn. Female goats are kept for milk while their kids are sold. Many families keep chickens for domestic consumption.

In Qarabagh (Ghazni province) each family has about 1-2 cows, 3-5 sheep, 1-2 goats, one donkey and 5-10 chickens. In 1990, 21 percent farmers had oxen, 94 percent had cows and calves, 85 percent had sheep and goats, and 79 percent had donkeys.

In Nad Ali area (Helmand province) small farmers usually keep two oxen, one cow, 4-5 sheep, one donkey and 5-10 chickens. Large farmers here usually do not keep oxen

or donkeys but they have more than 3 cows, over 10 sheep and some goats. Livestock raising is a common occupation in this area.

In Arghandab (Kandahar province) the average farm family owns 2-3 cattle, 6-7 sheep and goats, 1-2 donkeys and 4 percent of the households owned a horse. All farmers sale livestock, generally young cattle, sheep and goats. Fattened sheep are sold in winter and slaughtered for dried mutton. Donkeys are used for taking fruits to market and for carrying manure to the fields.

Besides the use of livestock for food security and transportation the magnitude of draught power for agricultural operations is very large in case of Afghanistan. While discussing the 'farm power' comprising labor, draught animals and machinery, the importance of oxen has been emphasized earlier by SCA (1987) showing that more than 90 percent of the farmers used their own oxen for ploughing before the war and to make up the shortfall to reach the pre-war levels it was estimated that about 500,000 oxen would be needed, which may take another 17 years to restore the number of oxen through natural increase at 3 percent annual growth rate.

Recent documentation of food economy in various ecologies of Afghanistan, carried out by Clarke and Seaman (1998), also highlights the importance of livestock in the Afghan culture:

Badakhshan Highlands: Livestock are very important to the local economy, although the shortage of winter pasture is a major constraint. An average household has around 20 head of smallstock.

Badakhshan Lowlands: The average household owns around 20 smallstock, a relatively high figure.

Takhar rainfed: Livestock ownership is high, the average household owns more than 20 smallstock.

Takhar/Kunduz irrigated: Smallstock are not an important part of this economic system. Most households keep very small numbers of smallstock (less than five). Oxen are, however, important for traction.

Northern rainfed: The Northern rainfed food economy might best be described as agro-pastoral. Even small farmers have 30 smallstock or more, and these presumably serve as a hedge against poor crop years. Sheep and goats are generally grazed communally, by a hired shepherd, in summer, and are brought in and given supplementary feed in the winter. More prosperous households will also keep large numbers of Karakul sheep. Oxen are important for ploughing the large cultivated areas, and are owned by approximately two thirds of the population.

Northern irrigated: Livestock are an important component of the economy of this area. The average smallstock holding is over 30 animals, and may be higher. Some, generally more prosperous households own large flocks of Karakul sheep. Almost half of the population do not own oxen, which possibly reflects high use of mechanical traction (around 50 percent of households are using tractors for land preparation).

North western irrigated: Herd sizes are large - the average number of small stock herd is over 35, although more than half the population owns less than 20 animals. Karakul production is important for some sections of the population.

North - western rainfed: Livestock are an important element of this economy. Average holdings are around 40 smallstock, although many farmers have fewer animals. Cattle are also important.

Ghor: Livestock are an integral part of the food economy of Ghor. Estimates of average smallstock holdings vary from 10 to 40. Most households will also own cattle. Livestock often migrate seasonally, spending the summer in higher pasture and the winter indoors, receiving supplementary feed.

Herat: Levels of livestock ownership are low in this area. Livestock do not seem to play particularly important economic role in the Herat economy.

Upper Hari Rud: Livestock ownership is more important in this area than it is further downstream. The average household may have 10 head of small stock, and the sale of smallstock is an important revenue earning activity.

Western pastoralist: The pastoralist economy is based around animals. Flock size differs widely even within one grazing group: in one study, one family had 9 animals, and another 351. Most households seem to have around 60 head. Ideally, these should be predominantly sheep, but in practice, the ratio between sheep and goats is about 1:1. Herds pasture together on the lowlands in winter, and separate into smaller groups during summer, as they move into the highlands. All households will also have pack animals, usually camels, to allow for movement of the household.

Farah: Levels of livestock ownership are low. Most households seem to have less than 10 head of smallstock. Livestock products are presumably obtained from the nomadic pastoralist populations who pass through the area.

Helmand: Most households own 5 to 10 head of smallstock. It is unclear whether this average includes sharecropping households or not.

Kandahar: Small numbers of livestock - an average of 5 to 10 smallstock and 2 or 3 cows - are kept, and grazed in the orchards.

N. Kandahar: Livestock holdings in this area are not large. An average household owns around 5 smallstock.

Zabul: An average household owns around 10 smallstock.

Logar/Paktia: The average household owns five to ten head of smallstock and around three cows.

Northern Paktia: Levels of livestock ownership are high. An average household has around 20 smallstock and 5 cattle.

Eastern Paktika: Livestock seem to dominate this economy. Over 90 percent of the population owns smallstock (on average, 45 head) and cattle (on average, 3 to 4 head). Transhumant livestock husbandry is the main occupation of a large proportion of the population.

South Western Paktia: Livestock ownership in this area is high, and a proportion of the population may be transhumant livestock herders. The average holding is 4 or 5 cattle and around 30 sheep and goats. The number of households owning oxen is low, possibly suggesting that agriculture and investment in agriculture, are low priorities for a large part

of the population. As in areas to the south, there is some confusion over whether the population here is undifferentiated, or divided into agricultural and pastoral populations.

Ghazni: An average household owns around 10 head of smallstock, 2 cows and 1-2 oxen. Before the war, this area was noted for large numbers of oxen, but this is less the case today. Animal products are for home consumption, although skins and woolen articles are sold.

Wardak: An average households are freeholders. Land distribution is on a fairly even curve. The average cultivated area by household is around one hectare.

Nangarhar: Animal husbandry is not central to the economy of this area. The average smallstock holding is below five head. Cattle are more significant, with almost all household owning 2-6 cows. Milk and milk products are consumed in the household and sold to Jalalabad.

Kunar: Most households keep smallstock, cattle and oxen. The average household would have around 10 smallstock, 2 cattle and 2 oxen. More information is needed on the management of these stock.

Laghman: Cattle ownership is widespread. Most households would own between 2 and 4 cows, which are stall-fed. Smallstock ownership is low, and smallstock are not an important part of the economy.

Nuristan: The basis of the Nuristan economy is livestock. Households may own 50 head of smallstock. Livestock are a relatively important source of food, and a major source of income.

Parwan/Kapisa highland: Livestock ownership seems to be lower than might be expected an average household would have 5-10 head of smallstock, and 2-3 cattle. In parts of the area, sale of cheese is an important income generating activity.

Bamyan: Livestock are less important to the food economy of Bamyan than to the neighboring central mountains food economy. Around 50 percent of households own smallstock (an average of 10 head per household), although the proportion owning cattle and oxen is higher.

Central mountains: Livestock are a key element of this economy. An average household would have between 10-20 smallstock, and 1-2 cows or oxen. Animal products are

consumed by the household, and yearling male smallstock would normally be sold for meat.

Southern Hindu Kush: Livestock ownership is high. An average household owns between 30-40 head of smallstock, although, again, this number is lower in Zabul.

South Western Uruzgan: Livestock holdings in this area are not large. An average household owns around 5 smallstock.

From the above discussion it is clear that livestock are quite important in the food economy of various parts of Afghanistan. To give an idea of what a consumer has to pay for buying livestock products used in human diet, the current retail prices are presented in Table-3.

Table 3. Approximate prices of livestock products during 1999.

| Item | Price of livestock products | | |
|-------------------|-----------------------------|-------------|----------------|
| | Afghani | US \$ | Pakistan Rupee |
| Milk (kg) | 9,000 - 11,000 | 0.21 | 11.25 - 13.75 |
| Beef (kg) | 40,000 | 0.93 | 50.00 |
| Mutton (kg) | 55,000 - 60,000 | 1.28 | 68.75 - 75.00 |
| Poultry meat (kg) | 80,000 | 1.86 | 100.00 |
| Eggs (dozen) | 18,000 - 24,000 | 0.42 - 0.56 | 22.50 - 30.00 |

Exchange rate: 1 US\$= 43,000 Afs, 1 Pakistan Rupee= 800 Afs.

Source: Personal communication with Dr. Naseri in the FAO Livestock Office for Afghanistan at Islamabad.

3. THE SIZE OF LIVESTOCK SECTOR

Agriculture being a dominant sector of the economy of Afghanistan contributed about 45 percent during 1978-79. Within agriculture, livestock is the major sub-sector, however, there is no good idea about the contributions that are made by different sub-sectors of the agricultural economy.

There have not been made very many efforts in the past towards estimating size of the livestock sector. Few studies (Feroqh, 1990; World Bank, 1979) have reviewed the agricultural and livestock production of Afghanistan. Feroqh (1990) estimated that total

output of livestock has declined at an average rate of 5.5 percent per year through the war time (1979 through 1988), and the livestock contribution to total gross domestic product declined from 16 percent in 1978-79 to 11 percent in 1989-90.

According to informed Afghan livestock experts, the livestock population of the country had declined by nearly 50 percent during the war. However, the livestock population started increasing particularly with the returning Afghan farmers from Pakistan and Iran after the war.

As a consequence of the war, the livestock data collecting and publishing agencies in the public sector are either non-functional or do not exist. Figures of livestock census are available for before the war period i.e. 1978-1979. After this period official statistics are not available. The FAO and other NGOs operating in Afghanistan have started generating livestock headcount information and data on other production parameters (though not for the whole country but for the districts where they operate).

In this part of the report a an effort has been made towards estimating the Gross Domestic Product of the livestock sector, based on the headcount/livestock population information collected by FAO, and other NGOs operating inside Afghanistan.

3.1 Economic Contribution of Livestock

Total GNP of Afghanistan in 1976-77 was about Afs 115 billion. Agriculture (including livestock and forestry) produced about 50 percent of GNP. Livestock contributed about 16 percent and handicrafts (largely woolen carpets and rugs), added a further 8-10 percent. Livestock products were about 14 percent of total exports with carpets and rugs accounting for a further 9 percent. The total value of recorded livestock exports including carpets and rugs in 1976-77 amounted to US\$ 65.6 million, of which carpets and rugs contributed 39 percent, Karakul pelts 30 percent, hides and skins 17 percent, and wool and hair 14 percent. The value of unrecorded live sheep exports to Iran

was about US\$ 33 million per annum. Only a small amount of livestock products, mainly milk powders were imported.

3.2 Livestock Number and Production

No official census of livestock has been carried out in Afghanistan since 1967. Livestock numbers for 1967, 1978-79 (pre-war) and 1995-96 are presented in Table-4. The livestock data for pre-war period are official statistics published by Ministry of Planning, Afghanistan and reported in several documents (Ferogh, 1990; GoRA, 1978; and World Bank, 1978 and 1979). The data for 1995-96 livestock numbers and production parameters are taken from FAO.

Table 4. Livestock composition in Afghanistan during 1967-1995.

| Species | million nos. | | | | | |
|---------|-------------------|----------------------|-------------------|---------------------|---------------------|----------------------|
| | 1967 ¹ | 1978-79 ¹ | 1981 ² | 1985 ² | 1991 ² | 1995-96 ² |
| Cattle | 3.633 | 3.730 | 3.750 | 3.800 | 4.049 | 3.693 |
| Sheep | 2.145 | 14.414 | 18.900 | 19.500 ³ | 18.688 ³ | 22.01 ² |
| Goats | 3.187 | 3.000 | 2.900 | | | 8.930 |
| Horses | 0.403 | | 0.400 | | 0.245 | 0.367 |
| Donkeys | 1.328 | | 1.300 | | 1.131 | 1.019 |
| Camels | 0.299 | | 0.265 | 0.180 | 0.080 | 0.277 |
| Poultry | | | | 6.800 | | 11.000 |

1 Ministry of Planning Afghanistan.

2 FAO Livestock Office for Afghanistan at Islamabad.

3 Sheep and goats total.

These figures for livestock numbers indicate that cattle, horses and camels have attained the pre-war level while sheep, goats and poultry have increased substantially. One can assume that the increment in livestock population in different regions of Afghanistan has continued since then. The FAO collected the head count data for two time periods; 1995 and 1998. A comparative analysis of 1995 and 1998 head count data shows that 1995 data were collected from 180 districts covering all geographical regions of Afghanistan and was projected for the whole country. Whereas, 1998 data covered only 152 districts which were not necessarily the same covered in 1995 and it did not include northern region due to continuous fighting. The livestock species followed different

trend in different regions between 1995 and 1998. In some provinces, cattle and small ruminants have shown tremendous increase while in others, livestock in 1998 has drastically decreased. This type of observation was also noted by SCA (1992) in their repeat surveys of the same areas.

For the purpose of this study, 1995 head count data have been used as basic data for the livestock GDP estimations due to its completeness.

While reviewing the agricultural rehabilitation in Afghanistan, Thieme (1996) carried out a detailed survey and estimated the magnitude of livestock products (Table-5).

Table 5. Estimates for livestock products during 1978-79 and 1995-96.

| Product/Source | Unit | Quantity | |
|----------------|-------|----------------------|----------------------|
| | | 1978-79 ¹ | 1995-96 ² |
| Milk | | | |
| Cattle | tones | 532,000 | 680,000 |
| Sheep and goat | tones | 260,000 | 620,000 |
| Total | tones | | 1,300,000 |
| Meat | | | |
| Beef | tones | 67,000 | 42,750 |
| Mutton | tones | 120,000 | 104,000 |
| Poultry | tones | | 5,000 |
| Total* | tones | | 146,750 |
| Wool | tones | 22,800 | 33,000 |
| Hair | tones | | 4,465 |
| Cashmere | tones | | 250 |
| Karakul pelts | no. | 1,294,000 | 450,000 |
| Skins | no. | | 450,000 |
| Hides | no. | | 6,500,000 |
| Eggs | no. | | 350,000,000 |

1 Ministry of Planning, Afghanistan.

2 FAO Livestock Office, Islamabad.

The description of livestock products given by Thieme (1996) indicates that half of the milk was produced by small ruminants, however, the proportion of milk used in making dairy products was unknown; small ruminants produced over 60 percent of the total meat; about 20,000 cattle and 180,000 small ruminants were sold to Pakistan annually; all of Cashmere wool produced in Afghanistan was exported; and about 78-88 percent of Karakul pelts had a good market at Frankfurt, Helsinki and Copenhagen since

farmers were getting better price than that paid by the Karakul institute in the past. He anticipated trade of animals for slaughter to the neighboring countries in future, increase in the domestic demand for the food items produced by livestock and related it to the development and the economic growth of the country.

3.3 Method of Valuation of Livestock Products

Standard methodology for the estimation of livestock gross domestic product used by GOP (1967) has been followed. One approach to estimate the contribution of livestock in the agricultural GDP is to estimate the value of livestock products and the value of draught power. In this study livestock products have been divided into 6 broad categories: 1) milk, 2) meat, 3) hides and skins, 4) eggs, 5) wool and hair, and 6) other livestock products. Value of milk is further separated according to the species i.e. milk produced by cattle and sheep and goats. Similarly total of meat is divided into mutton, beef and poultry meat. Other livestock by-products considered in the estimations were edibles, bones, blood, guts, horns, fat, dung, heads, trotters, etc.

For estimating value of draught power, it was assumed that about 15 percent of the cattle population is male cattle primarily maintained for draught and breeding purposes, of which about 95 percent are the work animals used in crop cultivation and other draught purposes. The average time of their use as draught animals was assumed to be 90 days in a year. The value of draught power is estimated on the basis of number of work animals, average days of work and their feed and maintenance costs.

The value addition of livestock products is derived by multiplying the quantity of each product with its respective price.

3.3.1 Estimation of Inputs Costs

Most of the inputs in livestock production are wastes or by-products that come from crop sector which has not included these inputs as outputs. GOP, 1967a and 1967b

reported that it may be in line with product approach of calculating GDP that no deduction for input costs is made from the value of livestock products.

However, there are several inputs that are coming from manufacturing sector. Several feed items are also widely traded. The feed items included in the estimation were roughages (green and dry), concentrates (grains, oil cakes, bakery wastes, urea molasses blocks, etc.), salt, medicines and other miscellaneous feeds.

Thieme (1996) estimated the quantities of dry roughages, green fodders, grasses and grazing pastures, and concentrates available for feeding livestock in Afghanistan. The input cost calculation involves 75 percent value of dry fodder including straws, 50 percent value of green fodder and total value of grass grazing which are assumed as actual utilized feed for livestock.

Deducting the value of inputs from the gross value of products the resultant figure so obtained is Gross Value Added (GVA) of livestock products.

3.3.2 Prices

The GVA estimates were calculated at 1978-79 constant prices as well as current factor cost of 1998-99. The 1978-79 prices were taken from different sources (Feroogh, 1990; GoRA, 1978; and World Bank, 1978 and 1979). The 1998-99 prices of livestock products were obtained from FAO Livestock Office, Islamabad that collected them particularly for this study from different regions of Afghanistan through its Veterinary Field Units. These prices are the retail prices being charged at major markets (most prices were collected from Kabul and Herat). The prices of some livestock products were not available for some years considered in this study. In that case, dollar exchange rate was used to inflate and deflate prices for the respective years covered in the study (WFP, 1999a reported that Afghani currency has experienced huge depreciation for the years in between 1995-96 and 1998-99. Therefore, average annual dollar exchange rate was calculated using monthly exchange rates in major cities of Afghanistan reported by WFP,

1999b. For every year average of dollar exchange rate starting from July through June next year was taken).

It is believed that the consumer prices of the livestock products are higher than the prices actually received by the producers mostly residing in rural areas. The difference in urban market prices and producer prices may be significantly higher in some of the livestock products. In order to estimate farm gate prices of all livestock products, the current market prices were reduced by 15 percent in this study (World Bank, 1978 estimated farm gate prices for Afghanistan by lowering market prices by 15 percent. Similar methodology is presented in GOP, 1955).

For by-products like edibles, bones, blood, gut, horns, fat, dung, heads, trotters etc. neither production figures nor prices were available. Some of these products are not bought and sold in the market. Production of these products was, therefore, estimated by using the proportions from Pakistan livestock data. An indirect pricing technique of linking these products with meat prices was used to find out the respective prices.

Similarly, prices for feed ingredients were difficult to ascertain. For example grazing is a major feed ingredient but mostly not traded in Afghanistan. Prices of other livestock feed ingredients were obtained through discussions with several professionals and through various reports published by NGOs. For estimation purposes, indirect pricing techniques were used.

3.4 Assumptions for Estimating Livestock Products

It has been assumed that after 1995 no major change in the political scenes has occurred that might have disturbed routine life particularly in those areas covered for the 1995 livestock survey. Consequently, after war and political unrest, livestock farmers who have returned back from other countries as well those who stayed in their country during the war have been settling down with their agricultural and livestock production activities.

Livestock population might have followed the "normal" growth pattern for both the resident as well as nomads farmers.

3.4.1 Growth Rates

GoRA, (1976) reported that average annual growth rate of aggregate agricultural output including livestock has remained around 2 percent for pre-war period from 1970 to 1976. Believing that livestock have attained pre-war growth rate, it is assumed that in between 1995 and 1998 cattle population has increased with a rate of 2 percent per annum. Personal communication with several professionals of NGOs indicated that sheep and goat population has increased faster than the cattle during the same period. It is therefore, assumed that sheep and goats increased by 3 percent per annum. Similarly, it is asserted that the per animal productivity for milk, meat, and wool production has remained the same as it was in 1995.

Throughout this exercise, the possible recovery of the livestock sub-sector was taken into account. SCA, (1989) reported that estimated growth rate of Afghanistan's cattle is 3 percent. It is assumed that after 1998-99 for 3 to 4 years, cattle population will increase at the rate of 3 percent. Similarly, sheep and goats, and poultry birds will be increasing at growth rate of 5 percent.

3.4.2 Milk and Meat Production

The production coefficients for milk, meat, and wool are based on the estimates reported by Thieme (1996). They were confirmed during the discussions of the authors with several Afghan livestock professionals presently working in different NGOs.

It is assumed that milk yield per cow is 850 kg per lactation. About 30 percent of the cattle stock are adult female cows of which 75 percent are in-milk. For sheep and

goat milk production, it is assumed that 60 percent of small ruminants are adult females of which 80 percent are average in-milk and milk yield is 40 kg per lactation per animal.

For beef production, it is assumed that about 12 percent of cattle are slaughtered per year and average beef production per cow is 95 kg. Similarly, for mutton production, it is assumed that 20 percent of small ruminants are slaughtered every year and average meat production per sheep/goat is 16 kg (very similar estimates are reported in GoRA, 1978 and Thieme, 1996). The output of hides and skins are directly correlated to the animals slaughtered per year.

3.4.3 Karakul Pelts

Production of Karakul pelts is a specialized business in Afghanistan. Their number produced and exported depends upon the international market prices and demand. According to the informed livestock experts perhaps there were only 10 dealers in pelt business during 1996. Most of them have already left Afghanistan and the pelt business is in crisis. It is therefore, assumed that pelt production has been declining since 1996 at a negative rate of 25 percent per annum.

3.4.4 Poultry Production

Poultry birds are kept under rural poultry production system. According to 1995 FAO headcount data, there are about 11 million birds in Afghanistan. Several NGOs are propagating poultry production in Afghanistan and using poultry birds as an instrument for income generation projects. It is assumed that since 1996, the number of poultry birds is increasing at a rate of 4 percent per annum. Base year poultry production has been assumed as 5,000 tons of meat and 350 million eggs.

3.4.5 Wool, Hair, and Cashmere Production

Average wool production per sheep is assumed to be 1.5 kg from two shearings in a year. Average hair production per goat is assumed as 0.5 kg. Cashmere production is

of special importance as it fetches good price in the international market. Cashmere production is assumed to be 5 percent of the total hair production.

The estimated livestock production for different years is given in Table-6. Whereas, GDP estimation of livestock subsector is summarized in Table-6.

Table 6. Estimated Livestock products during 1978-79 and 1998-99.

| Products | 1978-79¹ Actual | 1995-96² Estimate | 1996-97 Estimate | 1997-98 Estimate | 1998-99 Estimate |
|------------------|---------------------------------------|---|-----------------------------|-----------------------------|-----------------------------|
| 000' tons | | | | | |
| Cow Milk | 532.00 | 706.29 | 720.41 | 734.82 | 749.52 |
| Sheep/Goat Milk | 260.00 | 623.79 | 642.50 | 661.78 | 681.63 |
| Cow Meat | 67.00 | 42.10 | 42.94 | 43.80 | 44.68 |
| Mutton | 120.00 | 103.97 | 107.08 | 110.29 | 113.60 |
| Poultry Meat | | 5.5 | 5.66 | 5.83 | 6.01 |
| Wool | 22.80 | 33.02 | 34.00 | 35.02 | 36.08 |
| Hair | 1.5 | 4.46 | 4.59 | 4.73 | 4.88 |
| Cashmere | 0.225 | 0.25 | 0.257 | 0.265 | 0.273 |
| 000' No. | | | | | |
| Karakul Pelt | 1,294.00 | 450 | 337.5 | 253.12 | 189.84 |
| Hides | 4.54.50 | 450 | 458.90 | 468.17 | 477.54 |
| Skins | 3656.94 | 6500 | 6692.70 | 6893.53 | 7100.34 |
| Eggs | 112,000 | 350,000 | 364,000 | 378,560 | 393,702 |

1. Ministry of Planning, Afghanistan.

2. FAO Livestock Office, Islamabad.

3.5 Estimation of Livestock GDP at Constant 1978-79 Prices

To obtain the gross value of livestock production, the volume of each product, presented in Table-6, is valued at the 1978-79 constant prices that are shown in Table-7. Estimation of livestock GDP was carried out on the basis of the methodology presented earlier and shown in Table-8.

For other livestock products that include draught power and several by-products, it was found that the value of draught power and these by-products came out roughly equal to 15 percent of the total value of the main livestock products, which is in agreement with Ferogh, (1990).

Similarly, it was found that the value of all inputs including green and dry fodder, concentrates, grazing from pastures and rangelands, medicines and vaccines came out roughly equal to 15% of the total value of the livestock products. This estimation was also in agreement with Ferogh, (1990).

3.5.1 Annual Growth Rate in GDP

Ferogh (1990) reported that total output of livestock has declined at an average rate of 5.5 percent per year during the Afghan war between 1978-79 and 1989-90. On the other hand, Thieme (1996) reported that the livestock numbers have reached almost pre-war level, which indicates that out put of livestock after 1990 increasing. This might be the reason for a positive annual growth rate of 1.06 percent prevailing from 1978-79 through 1995-96.

The estimated annual growth rates for 1995-96 onwards report increasing trend varying between 2 to 4 percent. It is believed that given prevailing relatively stable political situation, livestock GDP will continue increasing in coming years.

Table-7. Livestock GDP for Afghanistan, 1978-79 to 1998-99 at 1978-79 Constant Prices (Million Afs)

| Particulars | 1978-79 Afs/ton | 1978-79 Actual | 1995-96 Actual | 1996-97 Estimate | 1997-98 Estimate | 1998-99 Estimate | 1999-00 Projected | 2000-01 Projected | 2001-02 Projected |
|--|--------------------|-------------------|-------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| Beef | 40000 | 2680 | 1684 | 1718 | 1752 | 1787 | 1841 | 1896 | 1953 |
| Mutton | 60000 | 7200 | 6238 | 6425 | 6618 | 6816 | 7157 | 7515 | 7891 |
| Poultry | 110000 | 320 | 550 | 572 | 595 | 619 | 650 | 682 | 716 |
| 1. Subtotal | | 10394 | 8472 | 8715 | 8965 | 9222 | 9647 | 10093 | 10560 |
| Cow Milk | 10000 | 5320 | 7063 | 7204 | 7348 | 7495 | 7720 | 7952 | 8190 |
| Sheep & Goat Milk | 7500 | 1950 | 4678 | 4819 | 4963 | 5112 | 5368 | 5636 | 5918 |
| 2. Subtotal | | 7270 | 11741 | 12023 | 12312 | 12607 | 13088 | 13588 | 14108 |
| 3. Karakul Pelts | 430 | 556 | 194 | 145 | 109 | 82 | 61 | 46 | 34 |
| 4. Sheep Wool | 25400 | 579 | 839 | 864 | 890 | 916 | 962 | 1010 | 1061 |
| 5. Goat Hair | 19250 | 29 | 86 | 89 | 91 | 94 | 99 | 104 | 109 |
| 6. Cashmere | 41219 | 9 | 10 | 11 | 11 | 11 | 12 | 12 | 13 |
| 7. Hides | 600 | 273 | 270 | 275 | 281 | 287 | 295 | 304 | 313 |
| 8. Skins | 200 | 731 | 1300 | 1339 | 1379 | 1420 | 1491 | 1566 | 1644 |
| 9. Eggs | 29 | 269 | 842 | 876 | 911 | 947 | 995 | 1044 | 1097 |
| Total items 1 to 9 | | 20111 | 23754 | 24336 | 24947 | 25587 | 26650 | 27767 | 28939 |
| Other Livestock Products (15% of total) | | 3017 | 3563 | 3650 | 3742 | 3838 | 3998 | 4165 | 4341 |
| GRAND TOTAL | | 23128 | 27317 | 27986 | 28690 | 29425 | 30648 | 31932 | 33280 |
| Input Cost (15% of Grand total) | | 3469 | 4098 | 4198 | 4303 | 4414 | 4597 | 4790 | 4992 |
| Gross Value Added (m Afs) | | 19658 | 23219 | 23788 | 24386 | 25011 | 26051 | 27142 | 28288 |
| Annual Average Change in Livestock GDP (%) | | | 1.07 | 2.45 | 2.51 | 2.56 | 4.16 | 4.19 | 4.22 |

3.6 Estimation of Livestock GDP at Current Factor Cost

The estimation of livestock GDP at current prices is presented in Table-8. The Gross Value Added of livestock sector comes out to the extent of US\$ 507.85 million during 1998-99 which is 18 percent higher than what was estimated for 1978-79. This is primarily due to significant increase in the livestock numbers after the war. For example, sheep number increased from 14 million in 1978-79 to 24 million in 1998-99, goats increased from 3 million to 9.8 million and poultry increased from 6 million to 13 million. Other reason could be the inflation since 1978-79 as well as un-inflationary increase in prices of livestock products due to changing supply and demand situations. Consequently, livestock production and contribution has been increasing through the years covered in the study.

According to a previous study (UNDP, 1993):

In the twenty year period from 1958 to 1978, which marked the gradual transformation of Afghanistan from comparative isolation to a more open society, the economy remained basically agricultural. There was some industrial development but this was mostly linked to the processing of agricultural products or the production of farm inputs such as fertilizer from newly found gas fields. An estimated 85 percent population lived in rural villages, and almost all of the other 15 percent were connected in some way with rural enterprises. In the context of a formal Western view, Afghanistan was one of the least developed countries in the world, although data was only just beginning to be collected in a systematic way, and many of the criteria did not take into account the specialized nature of production systems in Afghanistan. The country was not however unproductive, or unnecessarily conservative except in more isolated pockets, and despite data which seemed to indicate otherwise, it could not be regarded as backward.

The agricultural production systems of Afghanistan can only be described as robust and resilient. For fourteen years, from 1978 to 1992 rural production systems in Afghanistan continue to support the remaining rural population under conditions of extreme difficulty. Although malnutrition and hunger were reported, this did not degenerate into the same catastrophic situations which developed in countries where the production systems are basically far less robust, and far more marginal, and in many cases, have simply exceeded their human carrying capacities. This is not the case in Afghanistan, for although the infrastructure developed by agricultural production systems in many areas has been degraded or destroyed, the basic elements of land and water remain.

Table-8.

Livestock GDP for Afghanistan, 1978-79 - 1998-99
(Values in Afs. Millions at Current Factor Cost)

| Particulars | 1978-79 | 1995-96 | 1996-97 | 1997-98 | 1998-99 |
|--|--------------|----------------|-----------------|-----------------|-----------------|
| Cow Meat | 2680 | 347070 | 744861 | 1072899 | 1519020 |
| Sheep/Goat Meat | 7200 | 1178482 | 2553985 | 3714833 | 5311057 |
| Poultry | 320 | 82439 | 180395 | 264936 | 382454 |
| 1.Subtotal | 10200 | 1607990 | 3479241 | 5052668 | 7212531 |
| Cow Milk | 5320 | 1310074 | 2811604 | 4049842 | 5733802 |
| Sheep & Goat Milk | 1950 | 1157055 | 2507549 | 3647290 | 5214492 |
| 2.Subtotal | 7270 | 2467128 | 5319153 | 7697132 | 10948294 |
| 3.Karakul Pelts | 556 | 15452 | 24384 | 25826 | 26886 |
| 4.Sheep Wool | 1596 | 114312 | 247735 | 360337 | 515170 |
| 5.Goat Hair | 29 | 18404 | 39886 | 58015 | 82943 |
| 6.Cashmere | 3 | 13705 | 29702 | 43203 | 61766 |
| 7.Hides | 273 | 54537 | 117045 | 168592 | 238694 |
| 8.Skins | 731 | 262587 | 568884 | 827456 | 1183005 |
| 9.Eggs | 459 | 180335 | 394614 | 579548 | 836618 |
| Total(items 1 to 9) | 20111 | 4734453 | 10220645 | 14812775 | 21105906 |
| Other livestock products (15% of total) | 3017 | 710168 | 1533097 | 2221916 | 3165886 |
| GRAND TOTAL | 23127 | 5444621 | 11753741 | 17034692 | 24271792 |
| Input Cost (15% of Grand total) | 3469 | 816693 | 1763061 | 2555204 | 3640769 |
| Gross Value Added (m Afs) | 19658 | 4627928 | 9990680 | 14479488 | 20631023 |
| Gross Value Added (m US \$) | 427.35 | 469.84 | 482.06 | 494.74 | 507.85 |
| Annual Average Change in Livestock GDP (%) | | 0.58 | 2.60 | 2.63 | 2.65 |

4. THE LIVESTOCK GENETIC RESOURCES

Based on the information provided by the FAO Livestock Office for Afghanistan at Islamabad, Scherf (1995) and the FAO data base 'Domestic Animal Diversity - Information System (DAD-IS)', the Afghan livestock can be classified as follows:

4.1 Cattle breeds

These include Afghan Kabuli, Badakhshani Bouy, Badakhshani Dasnier, Kandahari or Qandahari, Konari, Shankhansurri, Systani and crosses between native and exotic breeds (Friesian, Jersey and Brown Swiss). Kandahari and Systani breeds are large sized while Konari breed is medium sized.

The Afghan cattle present a large phenotypic variation in size and color (generally black or brown). Most cattle have a small or no hump. Small cattle found in the mountains and Badakhshan province may weigh below 200 kg while larger cattle are mostly kept in Herat and Kandahar area due to better feeding and management conditions.

While most cattle breeds represent draught animals, yielding between 500-1000 kg per lactation as is the case with nondescript cattle of neighboring Pakistan raised on low input : low output basis. However, the milk production of Kandahari cattle ranges between 1,000 - 2,000 kg per lactation, which is similar to Indian and Pakistani dairy breeds. After Kandahari, the next popular breed is Kunari which is medium sized like Jersey and it may produce around 1,000 kg milk per lactation.

The Afghan cattle are seasonal breeders and their calving interval is around 15 months on an average.

4.2 Sheep breeds

There are two types of native sheep breeds found in Afghanistan, Fat-tailed and Fat-rumped. The Fat-tailed breeds include Baluchi, Gadai or Gadik (Panjsher Gadik and Wakhan Gadik), Ghiljai or Ghilzai, Hazaragi, Kandahari or Qandahari, and Karakul. The Fat-rumped breeds comprise Afghan Arabi and Turki. Among the exotic sheep breeds found in Afghanistan, Marco Polo's sheep have been documented.

In the northern Afghanistan, Karakul (usually dark gray in color) is the most popular breed. It is quite hardy and well adapted to the local climate and management conditions in the northern areas. It weighs around 40-45 kg and mainly kept for Karakul pelts and wool used in the production of carpets. The average flock size of Karakuls is about 1,000 animals.

In the northern areas Arabi sheep also occupy an important place. The Arabi sheep is large weighing about 45-50 kg and black in color with a white stripe along the forehead. Some specimen of brown or white color are also found. The Arabi sheep is a good producer of mutton.

In the north-eastern parts of the country is found Turki sheep colored brown with a low yield of poor quality wool. However, it is good for mutton production due to its large size with a live weight around 50-55 kg. These animals accompanied the refugees to neighboring country Pakistan, where this breed is recognized as Afghani sheep.

In the southern Afghanistan one finds Baluchi breed which is spread to the adjoining areas of Pakistan and Iran. It is a medium sized breed weighing about 35 kg and produces good quality carpet wool.

In the eastern Afghanistan resides Gadik which is perhaps the smallest breed of sheep found in the Afghanistan. It weighs between 28-35 kg with low valued reddish-brown wool.

In the western Afghanistan lives the Kandahari breed. Sometimes it is also called Farahi or Heati. This animal can survive on the poorly managed rangelands, as well as, in the desert areas. The medium sized white colored Kandahari sheep weighs around 35 kg and produces one of the best quality wool for the manufacture of carpets.

In the central Afghanistan, Ghiljai or Ghilzai breed is found which is generally white in color but there is a wide variation in the color of this breed. It is a medium sized breed with body weight ranging between 35-45 kg. This breed offers mixed coarse wool.

For further detailed account of sheep breeds of Afghanistan, the reader is referred to Yalcin (1979).

4.3 Goat breeds

These include Asmari, Kabuli, Kandahari or Qandahari, Kashmiri, Markhor (exotic breed), Rahnama, Tajiki, Vatani or Watani.

Asmari goats are large in size. Their typical characteristics are small head, long neck, body color white with neck and black shoulders.

The Kabuli, Kandahari and Tajiki breeds are jointly termed as Vatani or Watani meaning native. These small sized goats are black in color and represent more than 75 percent of the Afghan goat population. They grow an undercoat popularly known as 'Cashmere' which has a market in Herat, otherwise the goat hairs are locally used in making ropes.

4.4 Horse breeds

The horses of Afghanistan comprise Herati, Mazari, Qatgani, Turkistani, Waziri, and Yabu breed. The horses are important in Afghanistan for carriage and sports. It is said that Afghanistan has best horses and the thoroughbred Arab horses had originated from Afghanistan. The Afghan horses find a good market in Pakistan.

4.5 Camel breeds

No specific breed classification is available for the camels found in Afghanistan, however, they are single humped dromedary type camels.

4.6 Poultry breeds

The native breeds of chicken include Khasaki, Kulangi, Rangin, and Sabwari. According to a report by Cossins (1994), the native poultry weighs about 1.5-2.0 kg and produces up to 90 eggs per year. Although poultry has not been commercialized to an appreciable extent in Afghanistan, Fayoumi breed has been imported and distributed by some NGOs under their projects on income enhancement of the local farmer families, keeping in view Pakistan's experience with this breed.

4.7 Yak

In the alpine areas of Afghanistan and Pakistan, adjacent to the Qinghai-Tibet plateau another important species is the Yak, however, it has not been possible to obtain topical information on yak production in Afghanistan, although it is known that yak have a role in the economy of the peoples in the Pamir mountains which extend into Afghanistan, but also form part of the territory of Kirgizia and Tajikistan. Yak are kept at high elevations (4,000 - 4,800 m) and also successfully at lower altitude (1,500 - 1,800 m). The estimated population of yak in Afghanistan and Pakistan is around two thousand heads (Li and Wiener, 1995).

5. THE LIVESTOCK PRODUCTION SYSTEMS

As indicated earlier, the livestock husbandry is a major component of agricultural farming in Afghanistan. The pastoral farming systems involve livestock raising on open grazing lands. Nomads are migratory livestock owners who make use of pastures on seasonal basis and migrate according to the needs of their herds. Karakul sheep are the predominant livestock found on the open pastures (SCA, 1993). Personal communication with the FAO Livestock Office for Afghanistan at Islamabad regarding the average herd/flock size indicated wide variation in the range (cattle 1 - 22, sheep 50 - 700 and goat 2 - 300).

Grazing is the main production system for livestock in Afghanistan, which has serious limitations during the winter season. Therefore, in the mountains and at high elevations indoor feeding is practiced invariably for all categories of livestock during winter. In the northern Afghanistan this is done for cattle, whereas, in the southern and eastern parts of Afghanistan livestock are kept open all year round due to relatively warm climatic conditions.

During the food scarcity periods for livestock, supplementary feeding is practiced all over the country in the form of concentrates, hay and other agricultural by-products.

5.1 Cattle

The Afghan farmers find cattle quite important for milk production and cultivation of land, although there is trend for mechanization of agricultural operations. Oxen still find a place at the small farmers level but milk production is likely to become more important with the advancement in mechanization.

The management of cattle varies, however, the milking cows are kept in confinement and during summer and spring season they are offered fresh alfalfa and clover. During the winter season cattle are fed straw, hay and corn stalks. Supplementary feeding with cotton seed cake, barley and corn (grain or flour) is also provided.

Dry cows, young stock and males are usually sent to hills during the summer, as is the case in the northern areas of Pakistan. During this period these animals are managed by the community and the cows are bred through natural matings.

5.2 Sheep and Goat

Sheep and goats are generally kept together and mainly thrive on grazing for most part of the year. The common flock size is approximately 25 animals, except Karakuls. The migration of sheep and goat flocks from lowlands to highlands starts during the early summer, where they stay till the end of summer season and are brought back to the lowlands in autumn. The young stock and adult sheep and goats are kept in separate flocks and the rams/bucks are not allowed with the adult females during this period. The females are exposed to breeding males during the months of October and November. The rams and bucks are kept in small numbers and one male has to cover about 100 females, however, under the better breeding management conditions one ram is kept for 20-30 ewes.

During winter and under severe weather conditions, sheep and goats are provided shelter and are offered concentrates, roughages, hay, straw and tree leaves of various types. Concentrate supplementation is provided for about two months in variable quantities, with preference to weak and advanced pregnant animals.

Shearing of sheep is done twice a year and that of goats once a year. Males not kept for breeding are castrated before attaining 12 months age. Mutton from sheep is liked more as compared to goats. For this reason, fattening of young lambs is practiced in Afghanistan, however, at the domestic level only.

Nomads, contribute significantly in the production of sheep and goats for Afghanistan. War seems to impose a little influence on the nomads. It appears that nomads have maintained their flock size, however, the war has posed certain limitations on the grazing opportunities for their livestock. The nomads are successfully maintaining

high fertility and low mortality in their flocks. Some of them are making use of anthelminitics and vaccination also.

Karakul sheep have received special attention due to Karakul pelts the Karakul lambs not kept for breeding are slaughtered within 24 to 36 hours after their births for obtaining the Karakul pelts. It is estimated that the population of Karakul sheep has been restored after the war, however the production of pelts has been affected adversely. The magnitude of decline in the pelt production and around 50 percent due to non-existence of dealers. After meeting the domestic demand of the pelts, the additional Karakul sheep are being bred for mutton and wool production, like other sheep.

Production of Karakul pelts from Karakul sheep started in Afghanistan around 1920s and it became a big business during 1950s when the country was controlling the major pelt markets in the world. A Karakul Institute was established in 1966 to focus on processing and marketing of pelts. The gray pelts from Afghanistan made up to 70 percent of the whole pelt production before the war. The Karakul pelt production is a highly specialized job, surprisingly done by the villagers. They know which ram will produce what color in the progeny. The lambs are slaughtered within two days of birth, even pulled out manually at the time of birth with least worries to the death of dam in the event, to maintain the color of the pelt and curls in the wool. The pelts are then processed for marketing. The war has adversely affected the production of Karakul pelts. During 1995, there were only few dealers (around ten in number) for these pelts in the Mazar-i-Sharif and Sheberghan area, but no more now. At the present time, the Karakul sheep are maintained mainly as ordinary sheep for meat and wool production after meeting the domestic demand for the Karakul pelts. Karakul wool is important for the traditional carpet industry.

6. LIVESTOCK NUTRITION AND HEALTH SITUATION

6.1 Livestock Nutrition

In Afghanistan, a very large area (about 85 percent) is the pasture land and less than 15 percent of the land is available for cultivation. Of this, up to 10 percent is be used

for fodder crops, which is similar to the pre-war period. The farm livestock husbandry is based on the feed produced on farms, mainly consisting of alfalfa, clover, Vetch (*Vicia sp.*) and straw or buhs (pulverized wheat stock). Throughout the growing season livestock are grazed on crop residues left after harvest, and fed fresh clover and alfalfa. During the winter wheat or barley straw, dried alfalfa or clover (hay) and in some instances (in fattening of sheep for mutton) grain, barley, maize or, vetch (grain) are also fed. It should be noted that during the growing season weeding of the fields provides a significant portion of the summer diet for farm animals (SCA, 1993).

The major fodder crops are however, alfalfa (*Medicago sativa*), Egyptian clover (*Trifolium alexandrinum*) and Persian clover (*Trifolium resupinatum*). The latter is grown in the eastern Afghanistan where the climate is warm and it is always offered fresh. Large ruminants are the main consumers of the fodder crops.

The FAO under its program 'Integrated Livestock Development for Food Security in Afghanistan (ILSA) is trying to improve the nutritional status of Afghan livestock. Improved Egyptian clover varieties from Pakistan were tested in Jalalabad, Khost, Mazar-i-Sharif, Kandahar and Herat area. Likewise, improved alfalfa varieties from Australia and multi-cut oat varieties as a fodder crop have shown acceptance of the farmers. There are plans to extend new fodder crop demonstration in the Farah, Kandahar, Kabul and Nangarhar provinces and to other locations in northern and central Afghanistan. Analysis of various feed stuffs for livestock is presented in Table-9.

Table 9. Analysis of livestock feed stuff.

| Feed name/Description | DM | CP | CF | TDN |
|------------------------------|-----------|-----------|-----------|------------|
| Alfalfa | | | | |
| - fresh, early bloom | 23.0 | 19.0 | 25.0 | 60.0 |
| - fresh, full bloom | 25.0 | 14.0 | 31.0 | 55.0 |
| - hay, suncured midbloom | 90.0 | 17.0 | 26.0 | 58.0 |
| Bakery | | | | |
| - waste, bakery product | 92.0 | 10.7 | 1.3 | 89.0 |

| | | | | |
|--|--------------|------------|--------------|--------------|
| Barley | | | | |
| - grain | 88.0 | 13.5 | 5.7 | 84.0 |
| - hay, sun cured | 87.0 | 8.7 | 27.5 | 56.0 |
| - straw | 91.0 | 4.3 | 42.0 | 40.0 |
| Beans | | | | |
| - seed | 89.0 | 25.3 | 5.0 | 84.0 |
| Barseem | | | | |
| - fresh | 16.0 | 17.0 | 32.0 | 58.0 |
| - hay, sun-cured | 91.0 | 15.0 | 26.3 | 56.0 |
| Carrots | | | | |
| - roots, fresh | 12.0 | 9.9 | 9.7 | 84.0 |
| Clover | | | | |
| - fresh, full bloom | 17.0 | 22.0 | 15.6 | 64.0 |
| - hay, sun cured | 89.0 | 16.0 | 28.8 | 54.0 |
| Cotton | | | | |
| - cottonseed meal | 93.0 | 39.0 | 17.0 | 65.0 |
| Grass | | | | |
| - fresh, mid bloom | 30.0 | 12.0 | 26.0 | 60.0 |
| - hay, sun cured | 91.0 | 10.0 | 30.0 | 48.0 |
| Maize | | | | |
| - fresh, whole plant | 23.0 | 8.0 | 28.0 | 50.0 |
| - aerial part, without ears and husks, sun cured (stover) | 85.0 90.0 | 6.6 3.2 | 34.4 36.2 | 50.0 50.0 |
| - cobs, ground | 97.0 | 59.8 | 4.7 | 89.0 |
| Gluten meal 60% | 86.0 | 30.0 | 5.0 | 83.0 |
| Gluten meal 30% | 89.0 | 13.6 | 3.4 | 90.0 |
| - grain grade 2 | | | | |
| Millet | | | | |
| - grain | 89.0 | 13.5 | 9.3 | 85.0 |
| - fresh | 28.0 | 9.5 | 31.6 | 63.0 |
| - hay, sun-cured | 87.0 | 8.6 | 29.6 | 59.0 |
| Molasses | | | | |
| - molasses/urea blocks | 82.0 | 26.0 | 3.0 | 63.0 |
| Oats | | | | |
| - grain | 89.0 | 13.3 | 12.1 | 77.0 |
| - hay, sun cured | 91.0 | 9.3 | 30.4 | 55.0 |
| - straw | 92.0 | 4.4 | 40.5 | 45.0 |
| Peas | | | | |
| - seed | 89.0 | 25.3 | 6.9 | 87.0 |
| - straw | 87.0 | 8.9 | 29.5 | 46.0 |
| Potatoes | | | | |
| - tubers, fresh | 23.0 | 9.5 | 2.4 | 81.0 |

Table 9. Analysis of livestock feed stuff (continued).

| Feed name/Description | DM | CP | CF | TDN |
|---------------------------|------|------|------|------|
| Rice | | | | |
| - rice polishing | 90.0 | 15.0 | 12.0 | 88.0 |
| - straw | 89.0 | 4.0 | 35.1 | 47.1 |
| - ammoniated straw | 89.0 | 8.0 | 39.0 | 52.0 |
| Sorghum | | | | |
| - grain | 87.0 | 10.1 | 2.6 | 84.0 |
| - aerial parts, sun-cured | 89.0 | 7.5 | 26.9 | 58.0 |

| | | | | |
|--|------|-------|------|------|
| Soybean - hay, sun-cured, midbloom | 94.0 | 17.5 | 26.8 | 53.0 |
| Sunflower - seed | 93.0 | 44.6 | 13.1 | 74.0 |
| Turnips - roots, fresh | 9.0 | 11.8 | 11.5 | 85.0 |
| Vetch - hay, sun cured | 89.0 | 20.8 | 30.6 | 57.0 |
| Wheat - bran | 90.0 | 16.0 | 11.0 | 70.0 |
| - fresh, early vegetative | 22.0 | 28.6 | 17.4 | 73.0 |
| - grain | 89.0 | 16.0 | 2.9 | 88.0 |
| - hay, sun cured | 88.0 | 8.5 | 28.1 | 58.0 |
| - straw | 89.0 | 3.6 | 41.6 | 41.0 |
| Additives - urea | 98.0 | 287.5 | 0.0 | |
| - DAP | 98.0 | 115.0 | | |

DM: Dry matter, CP: Crude protein, CF: Crude Fiber, TDN: Total digestible nutrients.
Expected intake (body wt *2.6/100)
Source: FAO Livestock Office for Afghanistan Islamabad.

Thieme (1996) estimated the available amount of dry matter as 3.1 tones per year per livestock unit, keeping in view availability of 23.5 million tones of roughages to cater the nutritional requirements of 7.5 million livestock units in Afghanistan. His information indicated that the prevailing livestock systems in the country were making maximum use of the opportunities through mobility and utilization of agricultural by-products. Treatment of straw with urea improves its intake, digestibility and nitrogen content. The technology is being transferred to the farmers by ILSA. The Urea molasses blocks (UMB) have a relevance where straw is used in high proportions in the diet of ruminants. Local production of UMB is not possible at the present, however, there is a large demand in Nangarhar, Khost, Ghazni and Kabul area. Currently, the UMBs are obtained from Pakistan. Due to little knowledge on quality of feeds, limited land and water resources, an improvement in the fodder production is very much desirable for the increased livestock production.

6.2 Animal Health

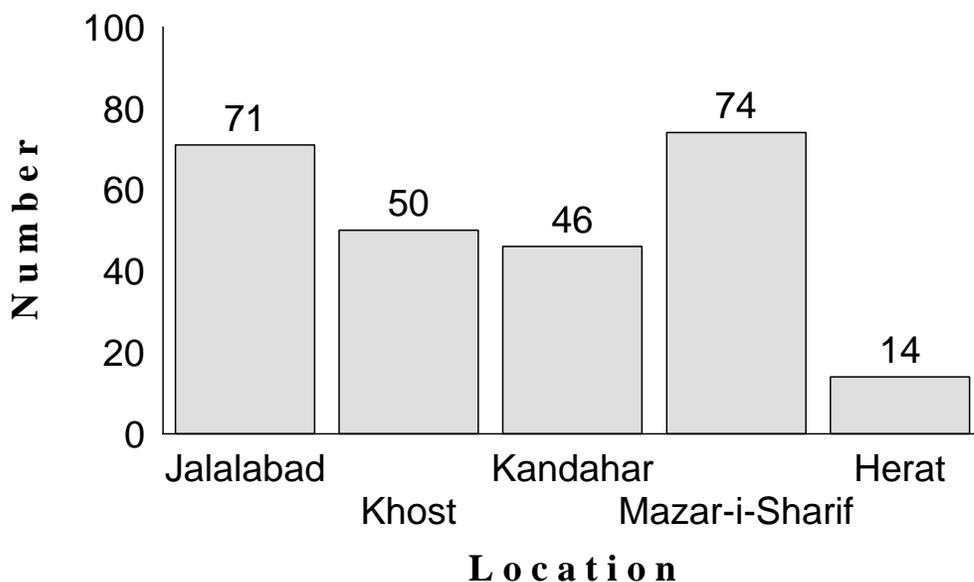
Providing health care for the development of livestock sector can be seen as a major activity of the government, international agencies and various NGOs during the pre-war and post-war periods. Prior to the war, the endeavors for livestock development

included facilities for providing in-country veterinary education at Kabul, establishment of about 80 veterinary clinics in the major centers for livestock production, establishment of several veterinary pathological laboratories and local production of vaccines against major diseases of livestock.

The veterinary network was unfortunately destroyed to a large extent during the war. Various NGOs rushed to rescue this situation and initiated free vaccinations and treatment of sick animals. The FAO/UNDP helped in establishing the Veterinary Field Units (VFUs) to carry out vaccination, deworming and treatment of sick animals nationwide. The distribution (locations and number) of VFUs cooperating in the FAO Livestock Program is shown in Figure-I.

These VFUs cover more than two-third of the districts in Afghanistan and a veterinarian (usually a graduate from Kabul University) is supported by para-vets at the districts level, while the selected farmers are trained and designated as Basic Veterinary Workers (BVWs) at the village level to carry out vaccination and simple treatments of the livestock. The livestock owners are required to pay the full cost of medications and treatments (FAO, 1995). There are plans to gradually convert these 255 VFUs into independent private veterinary clinics.

Figure I. District-wise Distribution of Veterinary Field Units.



Source: FAO (1996). In addition to these, there are about 60 VFUs directly supported by other NGOs.

Although it is difficult to assess the exact incidence of various diseases in the Afghan livestock, it can be judged from the supply of vaccines for which FAO is the major source that Afghan livestock also suffer with diseases similar in the region (Table-10).

Table 10. Vaccines supplied to Veterinary Field Units during 1996.

| Vaccine | Quantity ('000 doses) |
|--------------------|-----------------------|
| Anthrax | 200 |
| Enterotoxemia | 1,484 |
| Sheep Pox | 1,560 |
| Black Leg | 504 |
| New Castle Disease | 3,886 |

Source: UNOCHA (1996).

The veterinary medicines are mainly procured by the FAO, Umbrella Veterinary Service Association (UVSA) and the Dutch Committee for Afghanistan-Veterinary Program (DCA-VET). From 1997 till May, 1999, the UVSA had procured veterinary

medicines worth US\$ 0.562 million. Although, the UVSA turns out to be the largest supplier of veterinary medicines to Afghanistan, currently it is only able to meet about 2-3 percent of the total demand.

Generally, veterinary medicines are coming into Afghanistan from Pakistan and UK. In the past some veterinary medicines were imported from Iran and India also. According to SCA (1991) animal diseases were not a severe constraint in relation to farmers' other problems, except where the aid agency veterinary programs were not working, for example, Takhar and Badghis provinces.

The annual mortality in Afghan livestock (calf, lamb, kid and adult) and the impact of a veterinary program have been discussed in detail by Schreuder et al. (1996a, 1996b and 1998). Based on survey of four districts carried out by the Dutch Committee for Afghanistan, these studies indicated an average annual mortality rate of 16.2, 17.3 and 19.1 percent for calves, lambs and kids respectively in the areas under the veterinary coverage. Corresponding values for the area without veterinary cover were 21.5, 25.2 and 24.6 percent. Adult mortality figures were 3.8, 7.4 and 5.4 percent in cattle, sheep and goats, respectively in the covered area. Corresponding figures for the uncovered area were 5.3, 13.6 and 15.6 percent, respectively. The impact assessment of the veterinary program indicated variation according to the season and the age group of animals involved. The program lacked impact in winter, in particular in adult small ruminants. The highest impact was noted in the spring and autumn for adult goats, and summer and autumn for adult sheep. The impact of the program was also limited (in small ruminants even completely absent) during the suckling period in young animals. The highest impact was noted in the post-weaning period in small ruminants, when approximately four times more lambs and kid died in the uncovered districts than in the covered districts. This study showed that the major impact of the veterinary program was achieved when animals were in contact with other flocks during the grazing seasons and the program was directed against the parasitic and infectious diseases. This study also suggested

additional inputs including extension activities to improve the effect of the program in the winter and in the neonatal period.

The UNDP/OPS and various NGOs have undertaken several animal health initiatives in the mid and late 1980s. Training activities of different level veterinary auxiliary personnel have been carried out intermittently by the German Afghan Foundation, EIL (Experiment in International Living) and the Swedish Committee for Afghanistan. To partially overcome the shortage of qualified veterinarians, the Dutch Committee for Afghanistan has focused attention on the development of Basic Veterinary Workers (BVWs) and para-vets by giving appropriate training to the farmers. The BVWs are taught two introductory books whereas the para-vets are offered a course of five to six months duration during which they are taught 13 books besides the practical training. The course for para-vets is designed to help develop an understanding of the causes of diseases, problem based clinical diagnosis, diagnostic and therapeutic techniques, immunity and vaccination, and poultry production besides working knowledge of the other technical subjects such as reproduction, pharmacology, anatomy and physiology, surgery, and parasitology.

7. FUTURE WORK IN THE LIVESTOCK SECTOR

The World Bank (1975) had identified earlier following areas for the improvement of Afghan livestock about a quarter century ago:

- Improvement in livestock production should receive high priority for both social and economic reasons and should concentrate on improving animal health and nutrition and increased product processing.
- Implementation of Integrated Livestock Project in Herat should be emphasized and similar projects should be indicated elsewhere.
- Regional animal health centers need to be established, and feed mills should be developed to utilize industrial crop by-products.

- A rangeland survey should be initiated in order that a long term program for range development can be drawn up.
- Improved credit facilities to livestock producers are needed, and measures should be taken to expand and upgrade Karakul production.

Due to the situation of war for about a decade since 1979 followed by civil unrest which continues to this time, the pace of development remained unusually slow in Afghanistan, hence most of these propositions are still valid.

The FAO visualizes the current situation as follows:

By 1995 over half the farmers of Afghanistan used improved seed, which raised yields for them from one to approximately 2.5 tones/hectare. The animal health services are being delivered in 236 of the 332 districts of the country. Yet, as a legacy of 14 years of war, there remains a food deficit of 700,000 - 800,000 MT, horticultural production is not meeting subsistence demands, livestock health services do not cover the whole country, livestock productivity is low and the forestry sector, to say the least, is neglected (FAO, 1995). Based on the FAO's experience through various rehabilitation and development programs, Thieme (1996) recommended future work in the following areas:

- Detailed studies on production potential of livestock breeds, production and utilization of feed stuffs, incidence of major livestock diseases including parasites.
- Data collection on the livestock production performance including crossbred animals and the farming systems.
- Training of manpower through reopening of animal science faculties in Afghanistan and offering refresher courses.
- Re-establishment of government farms may be discouraged, except for Kabul University.
- New or improved varieties of fodder crops and their utilization in cattle feed.
- New strategies for optimum supplementary feeding of sheep during winter.

- Development of optimum strategies for Karakul flock to combine Karakul pelt and mutton production.
- Establishment of Veterinary Disease Diagnostic Laboratories, as already planned.
- Inclusion and strengthening of artificial insemination in the activities of VFUs.
- Commercialization of poultry.
- Establishment of infra-structure for processing of hides, skin and wool.

It can readily be seen that these two sets of recommendations are fairly comprehensive, and they cover animal health, nutrition, product processing, rangeland development, credit facilities, and training and veterinary education. The future work on the development of livestock sector may, however, consider:

- Safety of indigenous livestock genetic resources against the indiscriminate crossbreeding with exotic breeds. Grouping of advanced breeders to provide quality sires for natural service.
- Assessment of farmers' needs in relation to livestock production.
- Establishment of information system on all the resources related to livestock production and health.
- Inclusion of breeding and nutrition in the farmers training programs.

Before war, the Herat Livestock Development Corporation (HLDC) aimed at rationalization of pastrolism in the Western Region of Afghanistan. The program included the development of economic cooperatives, quality control, extension activities in fodder production, animal health and the establishment of a slaughter house to export frozen meat to Iran. The construction of the slaughter house was completed but it operated only for a short period before it was looted during the first years of the war. The building and other main structures like the generators are still in place, in reasonable condition and could probably be renovated. There is also still an office of the HLDC at Herat with former staff, all the old files and plenty of wrecked equipment. A few studies were carried out within the frame of the HLDC but it seems that little progress was made in organizing the sheep owners and that the project was already in crisis when it collapsed in 1979. The complete lack of participation of the potential beneficiaries in the planning and executing of the project was probably a major factor for its failure. It seems that finishing male lambs for slaughter is still, and will again become an important aspect of livestock production in Afghanistan and the Herat province is well placed for such an activity. Even if the use of a large scale slaughter house and the export of frozen mutton to Iran might not be appropriate anymore it could be a good idea to study the experiences from the HLDC in more detail (Thieme, 1996).

8. SUMMARY AND ANALYSIS OF LIVESTOCK DEVELOPMENT AND REHABILITATION PROGRAMS

8.1 Food and Agriculture Organization of the United Nations

The FAO's program on 'Livestock Development for Food Security in Afghanistan (ILSA)' is extending support to the Afghan farmers since 1994 with following objectives:

- To ensure that the farmers, veterinarians and livestock specialists involved benefit from healthier animals and, as a consequence, improved animal production.
- To ensure that husbandry standards continue to improve and are reflected in improved food security.

The program is organized into four main sections: Veterinary Services, Livestock Production Services, Livestock Initiators (Women's Program) and Animal Health and Production Improvement (PIHAM).

There are five FAO Regional Livestock Offices operating in Afghanistan at Jalalabad, Khost, Kandahar, Herat and Mazar-i-Sharif to implement ILSA. These offices monitor the activities of 25 implementing partners - NGOs, Contractors and Veterinary Committees. In addition, the FAO provides training in the Regional Livestock Offices as well as in Kabul, Islamabad and Peshawar. Also, ILSA assumes a role for coordination and cooperation among the counterpart NGOs, UN agencies and the donors.

8.2 Non-Government Organizations

In the situation of war for a long period of time followed by civil unrest, about 174 registered NGOs have assumed the responsibility of relief, rehabilitation and development in almost all aspects of Afghan life with a missionary spirit. All NGOs are independent in their work, however, several NGOs cooperate with each other to share facilities and to meet their training requirements. Common programming among the NGOs is, however,

least evident. The coordination work is carried out by following NGOs based at Peshawar in Pakistan (ACBAR, 1998):

8.2.1 Agency Coordinating Body for Afghan Relief (ACBAR)

ACBAR was established in 1988. It currently has the largest membership of some 73 NGOs; both international and Afghan agencies. The main aim of ACBAR is to provide a framework within which agencies and organizations, providing assistance to Afghans, can exchange information and share expertise in order to enable a more coordinated, efficient and effective use of resources.

8.2.2 Southern and Western Afghanistan Association for Coordination (SWABAC)

SWABAC was formed in Baluchistan province of Pakistan at Quetta in 1988, by NGOs undertaking relief and rehabilitation assistance. SWABAC, like ACBAR, provides a forum in which member organizations can discuss their concerns regarding policy guidelines for delivering assistance, resource management and other operational issues - with the ultimate purpose of coordination in refugee assistance in Baluchistan, as well as in the repatriation and resettlement of Afghan refugees. Since 1995, SWABAC also maintains an office in Kandahar city and is now involved in training on management, project design and supervision, drug awareness, and community participation besides monitoring of food-for-work projects in cooperation with WFP (Kandahar).

8.2.3 Afghan NGOs Coordination Bureau (ANCB)

ANCB was established in 1991 in response to a need for an agency to coordinate the activities of Afghan NGOs. The aim of ANCB is to stimulate activities aimed at improving the quality of life of Afghans and to encourage their voluntary return to the home country. ANCB opened offices in Kabul and Jalalabad in 1993. Due to financial and security reasons both offices are now closed, however, ANCB is operating through its headquarters at Peshawar in Pakistan.

8.2.4 Islamic Coordination Council (ICC)

ICC is a body coordinating humanitarian organization working to save the Afghans at places of refuge as well as inside Afghanistan. It makes efforts to maximize the level of assistance to Afghans by encouraging Muslim organizations to avoid overlapping or duplication of resources. A total of 16 Muslim organizations are members of ICC. The goal of ICC is to provide a forum in which member organizations can discuss their concerns, design policy guidelines for delivering assistance, resource management and other operational issues with the ultimate purpose of improving coordination in refugee assistance in the North West Frontier Province of Pakistan and elsewhere, as well as for the repatriation and resettlement of Afghan refugees.

It is evident from the Figure-II that the concentration of NGOs based in the no provinces in various geographical regions is in the following order (high to low): northern, southern, central and eastern, and western.

Due to reduction s in the donor funding, most NGOs are forced to contract their activities at this period of time, however, there is a shift to development rather than the relief approach taken in the past.

The activities of various NGOs dealing with the Afghan livestock have been described in Annexure-I, however, a general analysis of the NGOs activities is presented below (which does not aim at criticism in any sense):

Although livestock is addressed mainly through veterinary services by over 40 NGOs as one of the main sectors of their operation in Afghanistan, of these only two NGOs had mandate to work exclusively on livestock, namely Eastern Veterinary Commission based at Jalalabad (Afghanistan) and German Afghanistan Foundation based at Peshawar (Pakistan). Also, the Dutch Committee for Afghanistan (DCA) after transferring it agricultural program to another GO is now working exclusively the veterinary side. The DCA and MADERA are one of the few NGOs operating VFUs staffed with veterinarians and para-vets. These NGOs have a system of procurement and supply

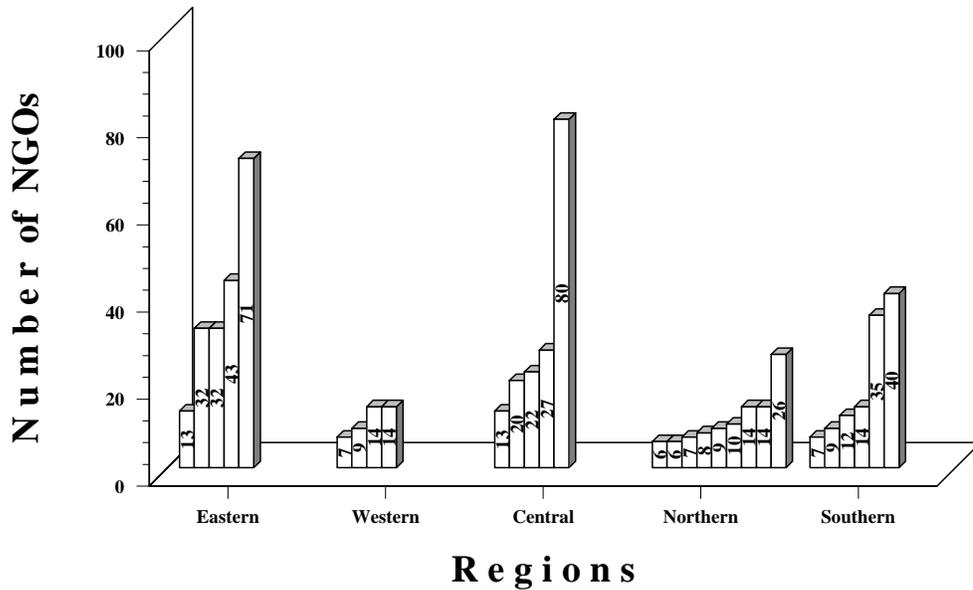
of veterinary medicines and vaccines to their VFUs in Afghanistan. Most NGOs are now encouraging the farmers to pay for each veterinary service except vaccination which continues to be free. The Umbrella Veterinary Services Association based at Peshawar is perhaps the largest importer of veterinary medicines from Pakistan and UK to satisfy orders from various NGOs, veterinary staff and retailers working in Afghanistan. Yet it is able to satisfy only 2-3 percent of the total demand of the veterinary medicines for use in Afghanistan.

The veterinary services as a whole are aimed at privatization through gradual decrease in the salary of veterinarians and introduction of a system which encourages the veterinary staff to purchase and use veterinary medicines themselves to sustain the veterinary activities in Afghanistan. The neighboring countries interested in privatization of veterinary services may also take advantage of this approach.

As a measure of immediate relief it is understandable that most NGOs involved with livestock have prioritized veterinary services including development of infra-structure necessary to provide these services.

As a long term rehabilitation process, however, only training for income generation through poultry production, bee keeping and even raising silk worms has received the major attention. To our knowledge, Pamir Reconstruction Bureau and Helping the Afghan Farmers Organization are the only NGOs, which are addressing animal production in some parts of Afghanistan through a set of interventions comprising artificial insemination, milk collection, improvement of fodder crops, improvement of local breeds, and increment in livestock products.

Figure 1I. Region-wise concentration of NGOs in Afghanistan.



Note - Each NGO works in more than one province, hence there is an overlapping in the number of NGOs and it should not be used for the calculation of total number of NGOs in Afghanistan. The names of provinces shown by region (left to right) are given below:

Eastern : Paktika, Konar, Laghman, Paktia and Nangarhar.

Western: Badghis, Ghor, Farah and Herat.

Central : Kapisa, Parwan, Logar, Wardak and Kabul.

Northern: Takhar, Faryab, Jawzjan, Bamyan, Kunduz, Samangan, Baghlan, Badakhshan and Balkh.

Southern: Nimroz, Uruzgan, Zabul, Helmand, Ghazni and Kandahar.

Based on ACBAR (1998).

9. GENERAL DISCUSSION

9.1 Livestock Productivity

The level of production in existing livestock populations in Afghanistan and the adjoining area is low as compared with the developed countries, however, local populations have a definite merit of being most useful under harsh environmental conditions with limited inputs. The main reasons for low productivity are: poor nutrition, low genetic potential, and low technical know-how. While marked achievements have been realized through past efforts for breed improvement on individual levels little has been achieved on national level in most developing countries due to deficiencies in the implementation of breeding programs often not concentrated on key production areas, lacking support by institutions, information systems as well as research and extension infra-structure. It is also observed that sometimes the market for increased quantity of products is not developed and that the cost of breed improvement may be higher than the expected returns. The level of genetic improvement that can be achieved is limited by resource availability and it differs between geographical areas. The expected level of production as a clear breeding goal needs to be set in conjunction with the farmers and considering resource availability. Also, it is desirable that the level of production that local breeds can attain under improved conditions is tested before involving in breed improvement by importing foreign genes.

The potential of income generation through genetic improvement is high, especially for landless people in urban and peri-urban areas and landless farmers with access to technology and production inputs. Smallholders' capability to benefit from breed improvement programs is high but their capacity to absorb innovations is limited.

For immediate improvement in production, interventions in animal nutrition and animal health may work perfectly in most situations, however, a long term improvement in production can only be achieved through the breed improvement since the native livestock are generally low producers. Clearly there is a great interest in the genetic

improvement of livestock among the farmers, particularly for the dairy cattle and for more intensive peri-urban systems of production.

Breeding cannot, however, be done by farmers without some institutional assistance, for which field data recording is a pre-requisite. The sparse data available on some breeds were collected mainly at isolated operations, often in the frame of development projects or are produced by monitoring a small group of animals. There are various explanations for this phenomenon. Among these are: low level of livestock production, limited interest to economically optimize livestock production, low level of education and the absence of a true breeding sector among livestock keepers.

In South Asian region, the livestock breeding efforts are mainly concentrated on the state breeding stations. In India and Pakistan, limited efforts have been made to estimate breeding values by progeny testing of buffalo and cattle. In general the breeding programs are deficient in execution, monitoring, follow-up and necessary adjustments. Also, there is a tendency to apply crossbreeding tools between the native and exotic breeds for a quick improvement in the productivity of the subsequent generation. For a detailed account of the performance of crossbred and immigrant dairy cattle in South Asia, the reader is referred to Khan (1994).

The breeding policies in this regard do recommend to maintain the full heterosis effect of the F_1 , however, the cross-breeding has gone completely out of control and maintaining a set level of gene proportions is just a wishful thinking. Cross-breeding is also the general approach of breed improvement in the other ruminant species. In beef and draft cattle, buffalo, sheep and goat improved local breeds are sometimes recommended for cross-breeding, rather than exotic breeds. The past effort of breed improvement should be carefully analyzed before involving in new programs. Breeding policies should follow realistic, market oriented goals, be well defined, practical and long-term. Farmers should participate in the design of breed improvement programs. A market for increased production needs to be ensured as well as availability of inputs.

Sufficient manpower and infrastructure for program execution needs to be available. The program must be accompanied by support services covering animals health, extension, training and finance. Reproductive performance and longevity have to be improved by adequate feeding and herd management concomitantly with increasing production. Cross-breeding should involve sire evaluation and selection. It should aim at stabilizing the crossbred population. Cross-breeding programs should be accompanied by measures ensuring the conservation indigenous animals genetic resources.

In the situation of Afghanistan, it should be relatively easy to handle breeding more efficiently by the private sector due to the presence of a large number of NGOs working through farmers' participation on community basis for the past 10 - 15 years or more in some cases. However, external assistance by foreign donors will be necessary. The NGOs may consider supporting breeding activities through credit schemes at reasonable interest rates and providing necessary facilities and breeding material to the farmers. Since the farmers are already tuned to pay for the veterinary services, they may not find it difficult to pay for the services needed for breed improvement. With the vast field experience in Afghanistan, the NGOs can hopefully coordinate effective breeding activities.

Natural breeding continues to be the only feasible breeding method, in many areas. Provision of quality sires can be a remunerative task for large herds and for groups of small farmers. A precondition for such enterprise to develop is a market for breeding animals and a system under which farmers adequately pay for natural service. Artificial insemination, mainly associated with exotic dairy breeds, is practiced successfully under small scale farmer conditions in many developing countries. In view of the high cost and low efficiency of AI service offered by government stations there is a general consensus that the private sector should be encouraged to take over AI activities. The FAO has already initiated AI in Afghanistan and it should be strengthened by providing loans or subsidies to private bodies or technicians who

intend to engage in AI activities. Farmers may be trained as AI technicians for inseminating their own herds and those of neighboring farmers. Semen quality and verification of insemination results by pregnancy diagnosis are essential features of an efficient AI service.

9.2 Dairy

In general, organization of farmers is minimum in the dairy sector. The experience of Indian cooperative dairy farming and Pakistan's experience with a farmers' organization namely, Idar-e-Kisan established between 1984 and 1989 in the framework of the Pakistani-German Pattoki Livestock Production Project, as well as, the AKRSP (Aga Khan Rural Support Program) Model may have a high relevance to the organization of farmers in Afghanistan.

9.3 Animal Health

This area is already on the priority list of most NGOs involved with Afghan livestock. Prophylactic services and supply of drugs is being carried out, however, disease surveillance and disease diagnostic facilities need to be strengthened further. Currently, the FAO has plans to set up disease diagnostic laboratories in the country.

9.4 Animal Nutrition

Services supporting livestock feeding should target land for grazing, provide fodder seed and test feed quality. Insufficient provision of this service is generally deplored but it is also recognized that farmers need to pay more attention to developing their own feed resources, in particular for provision during the dry season. While compound feed is supplied by the private sector there is no official quality control and the international agencies working in Afghanistan should assume this responsibility.

9.5 Extension

The tasks of extension services are training of extension officers and farmers (on farm, village level, formal, informal), training of farmers to conceive farming as economic enterprise and to be aware of government support (subsidies, loans), and training must be participatory and the needs of farmers should be continuously assessed. The NGOs and other agencies working in Afghanistan are quite strong in these areas.

9.6 Marketing

In most situations, farmers are mainly at the mercy of middlemen for selling their animals, hides and skins and poultry. In some cases, however, processing of milk at the farm into cheese, yogurt, curd, butter and ghee, allows value addition and through direct marketing farmers get around middlemen. The Pamir Reconstruction Bureau has initiated collection and its distribution in the Kabul area. More work is desirable on these lines.

In order to provide small farmers with high yielding animals which are often not available in the market, a system is needed by which pregnant or lactating heifers can be made available. Also, a market needs to be developed for quality sires so that breeders will have an economic incentive to raise male progeny of their best breeding females.

9.7 Financial services

There is evidence that some NGOs are extending credit and banking facilities to the farmers, however, it is imperative that the constraints of small farmers are sufficiently considered, which may include interest rate and cash flow. The farmers may be facilitated through low interest rate, credit at concessional repayment rates and group credit facilities.

10. CONSTRAINTS

10.1 Livestock Sector

Besides the ecological constraints (land and climate) the livestock sector is constrained with the following:

10.1.1 Biological Constraints

10.1.1.1 Livestock Nutrition

Traditionally, the livestock production in Afghanistan is constrained due to shortage of feed and poor nutrition particularly during the winter season. The area under fodder crops is extremely low and the problem is further expected to aggravate due to large regional and seasonal differences in the quality of fodder. Although protein requirements of ruminants are met at least partially by feeding legumes and cotton seed cakes, the mineral deficiencies are evident in the Afghan livestock. The compound feed and Urea Molasses Blocks are imported from Pakistan. The FAO is trying to help the farmers to look for alternate feed resources to improve the nutritional status of livestock.

10.1.1.2 Livestock Breeding

It seems that the production potential of livestock in Afghanistan is also low, which is common in the region, however, the production potential of Afghan livestock needs to be fully explored and documented for future planning. Also, the available material on the phenotypic description of the Afghan livestock is extremely inadequate.

The government farms and institutions including one for the Karakul sheep have been destroyed, therefore, long term programs for breeding of livestock do not exist any more.

10.1.1.3 Livestock Health

Despite the fact that animal health services have enjoyed the highest priority during the past and at the present as well, the extent of economic losses due to diseases remains unknown, the livestock coverage for prophylaxis is low and the farmers need to be convinced for timely vaccinations, deworming, spraying and dipping, etc.

10.1.2 Socio-economic Constraints

10.1.2.1 Technical Manpower

Following the closure of faculty at Kabul University and migration of people from the country due to war, the country is facing acute shortage of qualified personnel in animal production and veterinary sciences. The knowledge of existing staff is getting outdated due to lack of refresher courses. This is affecting the extension, laboratory and research work. The NGOs and international agencies are trying to partially fill in the gap by developing an army of Basic Veterinary Workers and the Paravets, however, considerable shortage of personnel abreast with the recent developments in the livestock research still persists.

10.1.2.2 Policy for livestock improvement

At the moment, there is no official policy for the development of livestock since the government infra-structure has been destroyed almost completely. A large number of NGOs are dealing with livestock at their own to rehabilitate Afghan animal agriculture. This may have some negative long term implications as well.

10.1.2.3 Marketing of livestock products

The marketing of Karakul pelts has been affected adversely due to war. The dealers handling these pelts for export have gradually wended up. The difficulties in marketing of this important commodity is restricting the growth of Karakul sheep for its specific purpose. As a result, Karakuls are now largely bred for mutton and wool production.

Also, there is a general lack of milk collection system in the country, which may have negative implications on the growth of dairy sector.

10.2 Programs In Operation

There is a large number of NGOs working in Afghanistan, of which about 20 NGOs are supported by FAO. About 80 NGOs both international and Afghan, are registered with the ACBAR, of these almost 50 percent have programs on veterinary services, veterinary training and income generation through poultry production, bee keeping or silk worm raising. There is only one NGO (Pamir Reconstruction Bureau) which has introduced milk collection and distribution system in the Kabul area.

Inadequate and uncertain funding is the major constraint for most NGOs. Short term funding, only for six months to one year, is contrary to the needs of rehabilitation and development which is long term in nature. In the recent annual appeal for Afghanistan (Annexure-III) the share of agriculture for the development of crops, horticulture, forestry and livestock is only 2.62 percent.

Usually the international financial appeal is considered by the donors on two grounds, emergency and development. Currently, Afghanistan does not seem to fit in both. Thus, minimum international response for funding would mean gradual withdrawal or at least sizable reduction in the ongoing important activities by the NGOs.

The situation of international funding for Afghanistan may get even worse if it is politicized on the basis of human rights and terrorist activities.

Other constraints include shortage of extension staff, non-existence of institutional frame work in the public sector and logistics (security problems and difficulties in transportation of supplies due to bad road conditions).

10.3 This Study

No traveling to Afghanistan was planned due to prevailing political circumstances, hence the consultants did not get an opportunity to see the things on ground.

Besides the published reports and personal contact with selected NGOs based in Pakistan, the main source of information was the FAO Livestock Office for Afghanistan at Islamabad, which has, no doubt, carried out tremendous work on the Afghan livestock. However, for a study like this more sources of information would be desirable to get different outlooks.

For the estimation of economic parameters, the study faced serious shortfalls due to non-availability of the basic data. Hence, most of the calculations were based on off-hand figures provided by various Afghan individuals and certain assumptions were made for estimating the magnitude of livestock products.

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INTERVIEWS/MEETINGS

At Islamabad

FAO Livestock Office for Afghanistan

Prior to taking up this study, initial contact was made with the FAO Livestock Office for Afghanistan at Islamabad and Dr. Abdul Baqi Meherban, National Program Manager was requested to provide basic information on infrastructure for livestock development, livestock composition, livestock products, involvement of NGOs etc.

A meeting was held with Dr. Abdul Azim Naseri who was compiling this information. The discussion with Dr. Naseri was helpful in developing a feel for Afghan animal agriculture.

Later, Dr. Terrance Barker, Program Manager was interviewed. He provided detailed feed analysis and comparative list of disease syndromes database of Herat and Mazar area. Discussion with him indicated that it was traditional in Afghanistan to use Alfalfa and Persian clover as fodder crops for livestock while Egyptian clover, Maize and Oats were introduced as fodder crops by FAO during the rehabilitation of Afghan animal agriculture. There were plans to introduce Millet and Sorghum as well. The Afghan livestock are generally underfed, around 20 percent. During winter the situation is even worse and animals loose condition. At that time wheat straw is the major feed, Egyptian clover and Barley are available only in limited quantities. Among the concentrates Cotton Seed Cake, Linseed Cake and Sesame are available in Afghanistan.

While discussing the breed improvement, he mentioned that the artificial insemination (A.I.) service was not working for the last many years. Recently, FAO started A.I. in Kabul, Kandahar and Jalalabad area. A total of 44 persons have been trained so far, of which 4 persons were given training in the laboratory work related to A.I. Frozen semen of Friesian cattle (4,000 doses) and Brown Swiss cattle (1,000 doses) has

been imported from Italy. In Kabul and Kandahar, fresh semen is obtained from the graded Friesian bulls.

As regards constraints to the FAO program, he mentioned inadequate funding, shortage of extension staff, non-existence of government and its institutions, logistics including problems of security and difficulties in transportation of supplies due to bad road conditions.

Dr. Olaf Thieme, in this office provided a copy of his report describing the livestock sector in Afghanistan. He was very helpful in sharing the information and validating our assumptions for the estimation of livestock products.

Office of the UN Resident/ Humanitarian Coordinator for Afghanistan

Mrs. Lubow Horich, Program Manager, was met to explore the database 'ProMIS' - Program Management Information System and seek guidance on other possible sources of information on Afghan livestock and related aspects. She was very helpful in explaining the use of ProMIS and locating the relevant documentation in the database. Also, Mr. S. Amanullah Shahidi, Resource Officer and his staff were helpful in drawing various activity maps of Afghanistan.

WFP Country Office for Afghanistan

Mr. Paul Clarke, Vulnerability Analysis and Mapping (VAM) Officer, FEVA Project was met to discuss the WFP program in Afghanistan. He mentioned that the WFP program started in 1960s, remained closed for a short period during the Soviet occupation and reopened during 1980s. He provided prices of cereals for the last three years. He was also helpful in identifying some literature and previous studies on livestock in Afghanistan.

At Peshawar

Dutch Committee for Afghanistan (DCA)

Dr. Alexros, Incharge of the program had gone back to Netherlands when the Consultants visited this office in July, 1999. His successor Dr. Muhammad Zakir alongwith Dr. Abdul Qadeer Samsor, Extension Coordinator and his staff were very helpful in explaining the program activities. They mentioned that DCA was the only NGO exclusively working on the veterinary side in Afghanistan. They were providing training to para-vets from related NGOs and for this purpose training centers were established at Kabul and Herat. The duration of such courses was five to six months and each batch of trainees comprised 18-24 persons on an average. Initially the course was offered at Peshawar. Besides, the para-vet training, the DCA also offers training for the extension workers.

The DCA also runs VFUs in four districts (Farah, Herat, Badghis and Ghor) and supplies quality medicines to the veterinary profession. For this purpose, four medical stores have been established in Herat, Ghazni, Kabul and Nangarhar district. Two years ago, DCA was supplying vaccines also for distribution in the field through FAO, now it is restricted only to the VFUs run by the DCA.

For the Afghan refugees in Pakistan, the DCA has a small program in Peshawar and Akora Khattack areas. At Peshawar the activities involve women in the refugee camps and at Akora Khattak the Afghan refugees are given training in poultry production. On completion of the training they are supplied chickens and helped in building up their poultry houses.

The DCA has also produced brochures on Rabies, Rinderpest, Hydated cysts, flat worms, fertility in cows, calf raising and poultry.

Swedish Committee for Afghanistan (SCA)

Although SCA is no longer working on livestock, its past activities on the veterinary side including women poultry project and seri culture need to be acknowledged. The SCA has extensively documented the Afghan agriculture including livestock and farm power through a series of annual surveys during 1988-93. Now SCA turns out to be the largest provider of education and human health through its activities in 20 provinces of Afghanistan.

Ms. Carol Eric Weinberg, Incharge of the Gender section was extremely helpful in providing guidance to the Consultants regarding the important NGOs and resource persons dealing with Afghan livestock.

Mr. Hakim Murad, Chief Technical Adviser for Rural Development had a detailed discussion on the economic aspects of livestock production and provided instant information on agricultural productivity in Afghanistan.

Umbrella Veterinary Service Association (UVSA)

The UVSA was established in 1996 to care for the whole veterinary sector in Afghanistan. Besides welfare work for the veterinary personnel, UVSA ensures procurement and supply of quality veterinary medicines to veterinarians working in Afghanistan.

Dr. Sardar Muhammad, Assistant Coordinator with the help of a translator (Mr. Ghulam Farooq, Finance Officer) informed the Consultants that seven other Veterinary Associations were working under the UVSA. These included Kabul, Kandahar, Nangarhar, Khost, Herat, Mazar and Takhar Veterinary Associations. He said that the demand for veterinary medicines was very high and UVSA was able to meet only 2-3 percent of it. According to him, the UVSA and DCA were only two NGOs providing

veterinary medicines in Afghanistan besides the local market. For the Afghan livestock, vaccines are provided by FAO.

Pamir Reconstruction Bureau (PRB)

The PRB is one of the few specialized agencies in animal health and livestock production in Afghanistan. It has a veterinary and animal health program since 1991, which comprised 53 VFUs in 6 provinces (Kunduz, Takhar, Badakhshan, Parwan, Kapisa and Paktika) to cover 53 districts in Afghanistan. The PRB is carrying out livestock production activities as well as the veterinary. According to Dr. Nazir Ahmed, Veterinarian and Mr. Muhammad Ashraf Behsoodi, Livestock Productionist, the PRB has organized 300 farmers for artificial insemination, milk collection, production of fodder crops and bee keeping. These farmers get technical assistance from PRB, which also plans to extend its activities for poultry production and fisheries in future.

As a community based activity, the milk collection was started with 50 kg milk per day and the current capacity of milk collection and distribution is around 1,000 kg per day. The PRB has set a target of collection and distribution of 2 tons of milk per day to cover areas surrounding Kabul. The milk collected from the farmers is transported a milk processing center in Kabul and after processing it is sold in the Kabul city.

Fresh semen is obtained from the Friesian and Brown Swiss bulls which are owned by the Ministry of Agriculture and FAO provides funds for the maintenance of these bulls and processing of semen. The FAO also supplies frozen semen for the artificial insemination of cattle.

The PRB is also involved in demonstrating benefits of urea-molasses blocks, mineral mixtures and urea treatment of straw and offers training for improving the fodder crop production.

Engineer Muhammad Kabir, Executive Director mentioned funding, security condition and brain drain (through migration and lack of updated knowledge) as some of the major constraints.

Mission of Aid for the Development of Rural Economies (MADERA)

MADERA is active in Kunar, Laghman, Nangarhar and Wardak provinces of Afghanistan. During the visit of Consultants to Peshawar, the MADERA veterinary staff remained occupied elsewhere. Hence detailed information regarding the activities of this NGO could not be obtained. Ms. Celine Lofervre, Assistant Director briefly mentioned that veterinary activities included production of vaccines, their use in the field through veterinary clinics and training of the farmers. Also, she provided a copy of the activity report for the year 1994. According to this report (MADERA, 1994), MADERA's installation at Qarghai in 1988 began with opening of veterinary clinic. The set objective was to save the rare remaining draught cattle, to support the animal production of a still scattered population and to preserve the substantial numbers of equine livestock (horses and donkeys) used in traveling and transport on routes to clandestinely. The clinic also provided sanitary and veterinary services for the immense nomadic herds living in winter on the pastures of the lower Laghman. By 1994, although the pool of working animals was considerably reduced, numbers of both sedentary and nomadic livestock had increased considerably. Diagnosis and treatment, and vaccination campaigns are carried out both by veterinarians and para-vets. Farmers are required to pay for the treatment of their animals, however, vaccination is provided free.

Afghanaid

Before 1997, the Afghanaid was active in the northern Afghanistan. Currently, it has programs exclusively in Badakhshan province to cover 7-8 districts. While describing the Afghanaid program, Dr. Teshome Lemma, MRU Director mentioned that they were working on a long term development program in Afghanistan, which included agriculture, transfer of technology to farmers, health education and infra-structure development including construction and maintenance of roads. The Afghanaid works at the grass root level through community organization and it takes the advantage of FAO approach, as

well as, the Aga Khan Rural Support Program (AKRSP) model. In the agriculture sector, cropping, horticulture, vegetables, degraded lands and livestock health are the areas of interest to Afghanaid. Training of BVWs on the diseases is backed up through the supply of vaccines and medicines. The BVWs, para-vets and the veterinarians are supplied vaccines free of cost, while the veterinary medicines are supplied on full cost.

Care International

Inside Afghanistan, Care International has its main office at Kabul and regional offices in Pakita, Ghazni, Wardak and Logar provinces. Care International is running programs on Afghan Village Assistance (AVA), Community Operated Primary Education (COPE) and Widows Emergency Feeding Program. Care International also touches infrastructure and water and sanitation.

Dr. K. Dawlaty, Monitoring and Evaluation Coordinator mentioned that Care International initiated another program 'Security of Food for Afghan Returnees (SoFAR)', which made a good progress. Therefore it was further expanded as 'Security of Livelihood for Afghan Returnees (SoLAR)' and final evaluation of this program was in progress based on the data generated through interviews with individuals and groups of the farmers (for detailed questionnaires the reader is referred to ACBAR, 1997). On completion of the evaluation, vertical expansion of the program in the same project area will include agriculture, horticulture and livestock.

Agency Coordinating Body for Afghan Relief (ACBAR)

Mr. Charles Mac Faddan, Director was met. He generously offered the services of ACBAR Library. In Pakistan, probably this is the largest collection of published material on Afghanistan. The library was consulted daily during the Peshawar visit and Mr. Suleman, Staff Member of the library was very helpful in locating the requisite material. Very useful discussion was held with Engineer M. Omar Anwarzay, Manager, ACBAR Survey Unit, he provided some spare copies of the Agricultural Survey of Afghanistan conducted by the Swedish Committee for Afghanistan in the past.

Annexure-II

List of NGOs involved with Afghan Livestock

| Name | Year Estab | Address | Sectors | Location/Province |
|---|------------|--|---|---|
| Afghan Aid | | 5B Gulmohar Rd., U/T, Peshawar | Agriculture, forestry, horticulture, apiculture, animal husbandry | Badakhshan, Jawzjan and Ghor |
| Afghan Aid Assoc. (AAA) | 1983 | Abu Noman Plaza, U/T, Peshawar | Completed Poultry project in 1992. Currently, seed multiplication | Laghman, Parwan, Jawzjan and Nangarhar |
| Afghan Community Development Organization (ACDO) | | 6-A, Khalil Town, GPO Box 858 Peshawar | Education, vocational training (carpentry, tailoring for women and disabled, weaving, small business projects including poultry training for women), construction, irrigation and agriculture | Mainly eastern and south eastern provinces |
| Afghan Development Assoc. (ADA) | 1990 | 17/F-A-A, KKK Rd., UPO Box 922, U/T, Peshawar | Integrated education, soil conservation, micro hydro, horticulture, agriculture, road repair and construction, veterinary science, vocational training, farm mechanization, irrigation and water supply | Oruzgan, Wardak, Kandahar, Ghazni and Zabul |
| Afghan Development Agency (ADAg) | 1990 | Room 212, Khyber View Plaza, U/T, Peshawar | Agriculture, irrigation, construction, road repair | Kabul, Kapisa, Logar and Nangarhar |
| Afghan Mobile Reconstruction Association (AMRAN) | 1992 | 306, 3rd Floor, Gul Haji Plaza, Jamrud Rd. Peshawar | Agriculture (including honey bee keeping project, poultry and fruit sampling distribution), irrigation, health, education and skill training | Laghman, Nangarhar and Paktia |
| Agency for Farming Support (AFS) | 1991 | H. No. 53, Street 4, E3 Phase 1, Hayatabad, Peshawar | multisectoral projects including household economy (income generation through poultry production and distribution, bee keeping, etc.) | Nangarhar, Khost, Kabul, Logar, Paktia |
| Afghans Health and Social Assistance Organization (AHSOA) | 1985 | 143 Old Bara Rd., U/T, UPO 753 Peshawar | Health services, education, agriculture and training for income generation in bee keeping, sericulture, poultry | Nangarhar and Paktia |
| Afghan Women's Welfare Organization (AWWO) | 1991 | H.NO.141, E3, Phase 1, Hayatabad, Peshawar | Construction, irrigation, engineering, agriculture, veterinary support, sanitation and water supply, vaccination and general health care | Logar |

| Name | Year Estab | Address | Sectors | Location/Province |
|---|------------|---|--|--|
| Afghan Relief Committee (ARC) | 1980 | 91 Canal Rd., GPO Box 489, U/T, Peshawar | Rural development, agriculture, irrigation, construction, health, sanitation, livestock improvement, veterinary services and income generation | Laghman and Nangarhar |
| Agency for Rehabilitation Assistance and Development of Afghanistan (ARADA) | 1992 | H.No.3, Canal Pul, Dehry Rd., U/T, GPO 644, Peshawar | Engineering, agriculture including poultry management and animal husbandry), and relief | Laghman, Nangarhar (also extended to Kunar) |
| Agency for Rural Development of Afghanistan (ARDA) | 1991 | 184 Upper Canal Lane, PO Box 540, U/T, Peshawar | Health, education, poultry production, animal health, agriculture, handicrafts and industries | Poultry farms in Nangarhar, Kabul, Parwan and Helmand. Veterinary clinics (23 no.) in Nangarhar, Kunar and Laghman Other activities in Paktia and Wardak also |
| Afghan Reconstruction and Development Unit (ARDU) | 1995 | Charahi Ansari, Shar-e-Naw, Kabul | Agriculture, income generation (bee keeping, poultry farming, silk worms, fish farming and mush room cultivation) | |
| Afghan Relief and Rehabilitation (ARR) | 1991 | Flat No. 403, Gul Haji Plaza, Jamrud Rd., U/T, Peshawar | Agriculture, agriculture and civil engineering, horticulture, education, poultry distribution and farming, emergency aid | Nangarhar and Paktika |
| Afghan Women Welfare Department (AWWD) | 1990 | 12 Defence Colony, Kafila Rd., Tahkal Payan, Peshawar | Education and income generation opportunities including poultry | Nangarhar and Refugees |
| Agriculture Rehabilitation of Afghanistan (ARA) | 1990 | 918 T, Arbab Colony, Belal Lane, Arbab Rd., U/T, Peshawar | 100% agriculture including poultry distribution and management | Takhar |
| Baz Construction Unit for Rehabilitation of Afghanistan (BCURA) | 1991 | 300, Street 25 D-4, Phase 1, Hayatabad, Peshawar | Agriculture, construction, income generation | Ghazni, Kunar, Laghman, and Nangarhar |
| Coordination of Humanitarian Assistance (CHA) | 1988 | H. No. 95, Street 6 N-3, Phase 4, Hayatabad, Peshawar | Agriculture including poultry farms, irrigation, construction, health, vocational training | Farah |

| Name | Year Estab | Address | Sectors | Location/Province |
|---|------------|--|--|---|
| Coordination of Afghan Relief (CoAR) | 1989 | 19 Chinar Rd., UPO Box 1013, U/T, Peshawar | Health, education, agriculture, horticulture, animal husbandry, rehabilitation system, irrigation and agriculture information structure | Logar and Wardak |
| Committee for Rehabilitation Aid to Afghanistan (CRAA) | 1990 | 130 Gul Haji Plaza, Jamrud Rd., UPO Box 785, Peshawar (sub offices in Jalabad and Kabul) | Agriculture, irrigation and water supply, veterinary and animal husbandry, orthopedic and physiotherapy services, narcotics awareness, flood control and education, poultry related training and distribution of Fayoumi chickens | Mainly Kunar and Nangarhar. 20 VFUs in 5 provinces covering more than 200 villages |
| Dutch Committee for Afghanistan Veterinary Programs (DCA-VET) | 1985 | Jamrud Rd., Near Kacha, UPO Box 792, U/T, Peshawar | Training in veterinary skills. Programs on livestock breeding irrigation, seed, fertilizers and tractors have been transferred to another NGO (HSFO) | Baghlan, Ghazni, Herat, Laghman, Logar, Nangarhar, Oruzgan, Paktika, Parwan and Wardak. About 56 VFUs and 5 Veterinary Support Centers for supply of medicines and vaccines |
| Eastern Veterinary Commission (EVC) | 1998 | 4, Hada Rd., Jalalabad | Exclusively veterinary | Kunar, Laghman and Nangarhar |
| Farah Reconstruction Foundation (FRF) | 1989 | H. Abdul Rasool Apartments, Musa Khan Jame Rd., Kandahar | Irrigation rehabilitation, infrastructure reconstruction, veterinary activities, agriculture, school roads and culvert construction, emergency relief and assistance to refugees. At present only limited to construction and irrigation | Badghis, Farah, Herat, Kandahar, Nimroz and Oruzgan |
| German Afghanistan Foundation (GAF) | 1986 | 39/D-3, Syed Jamaluddin Afghani Lane, U/T, Peshawar | Veterinary services | Bayman, Ghazni, Kabul, Kapisa, Laghman, Logar, Nangarhar, Paktia and Parwan. 56 VFUs at district level in 6 provinces |

| | | | | |
|----------------------|------|---|---------------------|--------|
| Global Partners (GP) | 1991 | H. No. 29 Street 32 F 6/1, Islamabad | Animal vaccinations | Ghazni |
|----------------------|------|---|---------------------|--------|

| Name | Year Estab | Address | Sectors | Location/Province |
|--|------------|--|---|---|
| Ghazni Rural Support Program (GRSP) | 1993 | H. No. 305 Street 25, D-4 Phase 1, Hayatabad, Peshawar | Agriculture development, animal husbandry, veterinary services, irrigation and construction engineering, women development, primary health care, technical training and education | Ghazni |
| Helping the Afghan Farmers Organization (HAFO) | 1990 | 57-B Park Avenue, U/T, Peshawar | Irrigation, agricultural rehabilitation, vocational education and animal husbandry (improvement of livestock breeds and increase in livestock products) | Helmand, Kandahar and Ghazni |
| Mission of Aid for the Development of Rural Economies (MADERA) | 1988 | 53-II-C, Gul Mohar Lane, UPO Box 1464, U/T, Peshawar | Rehabilitation, agriculture, veterinary (vaccine production and vaccination, treatment of sick animals through VFUs), training, and income generation | Kunar, Kunduz, Laghman, Nangarhar and Wardak |
| Multi Activity Rural Upgrading Foundation (MARUF) | 1993 | 18-B Speen Zar Plaza, U/T, Peshawar | Reconstruction of public buildings, social services and training including poultry | Kabul, Laghman, Nangarhar and Paktia |
| Mercy Crops International (MCI) | 1988 | P.O. Box 314 Quetta | Health, agriculture including animal husbandry | Ghazni, Helmand, Kandahar, Nangarhar, Oruzgan, Zabul and Refugees |
| Norwegian Project Office/Rural Rehabilitation Association for Afghanistan (NPO/PRAA) | 1990 | 15 B Old Jamrud Rd., U/T, Peshawar | Income generation skills training, construction, agriculture including veterinary and poultry, water supply, relief supply and education | Baghlan, Balk, Herat, Laghman, Nangarhar, Paktika, Paktia and Refugees |
| Pamir Reconstruction Bureau (PRB) | 1990 | 20-D, Circular Rd., U/T, Peshawar | Veterinary and animal husbandry (sheep raising, artificial insemination in cattle), milk collection and distribution, improvement of fodder crop production, bee keeping and sericulture. | Badakhshan, Balkh, Kabul, Kapisa, Kunduz, Paktika, Paktia, Parwan, Samangan, Takhar and Khost. 53 VFUs in Badakhshan, Takhar, Kunduz, Parwan, Kapisa and Paktika |

| | | | | |
|---|------|--|--|--------------------------|
| Reconstruction and Social Services for Afghanistan (RSSA) | 1990 | 6, 2nd floor, Khyber View Plaza, PO Box 1199, Peshawar | Agriculture including poultry, irrigation and construction | Kunar, Laghman and Logar |
|---|------|--|--|--------------------------|

| Name | Year Estab | Address | Sectors | Location/Province |
|--|-------------------|---|---|---|
| Reconstruction and Rural Development of Maihan (RDM) | 1991 | Murad Plaza, Jamrud Rd., GPO 615, Peshawar | Agriculture including small scale poultry, bee keeping, silk worms, rehabilitation of animal husbandry and recovery, and irrigation | Kabul, Laghman and Paktia |
| Relief Institution for Rehabilitation of Afghanistan (RIRA) | 1991 | H. No. 61-B, Chaman Housing, PO Box 589, Quetta | Agriculture, plan protection, improved seeds, information/training program for farmers on Raisins, veterinary program, survey of roads and bridges | South Western Afghanistan |
| Relief Organization for Afghan Orphans and Widows (ROAOW) | 1993 | Street 9, Jamal Rd., Shaheen Town, GPO Box 356, Peshawar | Income generation through poultry, soap making and training | Kabul, Nangarhar and Refugees |
| Rural Development Program (RDP) | 1992 | H. No. 766T, Sector No. 3, Jamal Rd., Shaheen Town, Peshawar | Reconstruction of roads and public buildings, rehabilitation of irrigation systems and agricultural projects on seed multiplication and distribution, poultry management and educational projects | Khost and Nangarhar |
| Shuhada Organization (SO) | 1989 | Shuhada Clinic, Alamdar Rd., Naseerabad, Quetta | Health, education, construction, relief distribution, income generation including distribution of sheep | Bamyan, Ghazni, Kabul and Refugees |
| Voluntary Association for Rehabilitation of Afghanistan (VARA) | 1990 | 414-U, Block 3, Satellite Town, Quetta | Agriculture, veterinary, engineering, irrigation, public health, small enterprise development | Ghazni, Helmand, Kandahar, Nimroz, Orzughan and Zabul |
| Women and Children Support Program (WCSP) | | H. No. 192, Street 8, Sector E-1, Phase 1, Hayatabad, Peshawar | Engineering, education, veterinary, agriculture and health | |
| Wak Foundation for Afghanistan (WFA) | 1988 | Flat No. 415, Gul Haji Plaza, Arbab Rd., GPO Box 1248, Peshawar | Rehabilitation, housing, animal husbandry and veterinary, agriculture, and education | Badakhshan, Kunar and Nangarhar |

Source: ACBAR (1999).

List of NGOs supported by FAO for food security in Afghanistan

NGOs based in Afghanistan

1. Kabul Veterinary Committee (KVC), Kabul
2. Shuhada Clinic Organization (SCO), Kabul
3. Veterinary Training Center (VTO), Kabul
4. Voluntary Association for Rehabilitation of Afghanistan (VARA), Kandahar
5. Bakhtar Agriculture and Livestock Cooperative (BALCO), Kandahar
6. Eastern Veterinary Commission (EVC), Jalalabad
7. Youth Association for Rehabilitation in Afghanistan (YARA), Jalalabad.
8. Ariana Livestock Rehabilitation (ALR), Mazar
9. Herat Livestock Committee (HLC), Herat
10. Afghan Ommulbelad Reconstruction (AOR), Baghlan
11. Farah Livestock Committee (FLC), Farah
12. Fariab Veterinary Committee (FVC), Fariab

NGOs based in Pakistan

1. OXFAM, Islamabad
2. Afghan Development Association (ADA), Peshawar
3. German Afghanistan Foundation (GAF), Peshawar
4. Pamir Reconstruction Bureau (RRB), Peshawar
5. Mercy Crops International (MCI), Quetta

Activities related to livestock

- Treatment, Vaccination and Deworming of livestock.
- Training of Basic Veterinary Workers (BVWs, men and women) and para-veterinarians.
- Training on poultry management (including vaccination, feeding, hatchery and treatment), wool spinning and weaving, carpet weaving.
- Refresher courses, seminars and workshops for field staff.
- Distribution of incubators, improved breeds of poultry including eggs and chicks.
- Head count of animals in Afghanistan.
- Artificial insemination.
- Introduction of improved fodder (seeds and trees), urea - straw treatment, molasses blocks and minerals powder.
- Fisheries.
- Diseases investigation.
- Support to Veterinary Service Association (VSA), Poultry Farmers Association (PFA), Molasses block industries, Laboratories, Government dairy farms and milk collection, processing and distribution.
- Provision of cold chain system for vaccine keeping.
- Kuchis survey.
- Meat inspection.
- Mosquito control through dusting of animals with external parasitic remedies.
- Extension (including BBC).
- Emergency action against diseases like rabies, rinderpest, etc.

Annexure-IV
1999 Appeal for Afghanistan
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(all figures in US\$)

| Thematic Groups | Total Project Budget | Funds Available | Funds Requested |
|--|----------------------|-------------------|--------------------|
| Alleviation of Human Suffering | | | |
| 1. DISASTER PREPAREDNESS | 977,887 | 231,257 | 746,630 |
| 2. MAIN ACTION | 25,644,282 | 0 | 25,644,282 |
| 3. EMERGENCY RESPONSE: Food Aid, Shelter Rehabilitation, Relief | 8,119,261 | 0 | 8,119,261 |
| 4. EPIDEMIC CONTROL: Leishmaniasis | 1,084,790 | 150,000 | 934,790 |
| Sub-Total: | 35,826,220 | 381,257 | 35,444,963 |
| Protection and Advancement of Human Rights | | | |
| 1. ELEMENTS OF A HUMAN RIGHTS OPERATIONAL PLAN: Indicative Projects | 1,994,370 | 788,290 | 1,206,080 |
| Sub-Total: | 1,944,370 | 788,290 | 1,206,080 |
| Provision of Basic Social Services | | | |
| 1. EDUCATION: provision of Basic Education Services | 10,892,548 | 4,132,758 | 6,759,790 |
| 2. EDUCATION: Quality Improvement | 1,406,250 | 40,000 | 1,366,250 |
| 3. EDUCATION: School Construction/Rehabilitation | 1,090,913 | 43,623 | 1,047,290 |
| 4. CHILD HEALTH INFECTIOUS DISEASE CONTROL: EPI, ARI/CDD, Malaria | 10,306,417 | 5,059,259 | 5,247,158 |
| 5. SAFE MOTHERHOOD: Comprehensive, Referral Services, TBA Training | 4,113,326 | 1,012,832 | 3,100,594 |
| 6. INTEGRATED HEALTH SERVICE | 11,036,623 | 1,275,930 | 9,760,693 |
| 7. HEALTH INFRASTRUCTURE | 2,210,767 | 209,505 | 2,001,162 |
| 8. VULNERABILITY: Disabled, Orphans | 2,540,843 | 298,700 | 2,242,143 |
| 9. WATER AND SANITATION | 17,704,288 | 3,136,334 | 14,567,954 |
| 10. OTHER | 2,593,216 | 239,160 | 2,354,056 |
| Sub-Total: | 63,895,291 | 15,448,201 | 48,447,090 |
| Empowerment of Afghans (both women and men) to build sustainable livelihoods, including non-narcotic alternatives | | | |
| 1. NATIONAL PROGRAMS | 13,467,434 | 1,713,246 | 11,754,188 |
| 2. INTEGRATED: Community Based Programs | 35,096,838 | 17,991,835 | 17,105,003 |
| 3. AGRICULTURE: Crops, Horticulture, Forestry, Livestock | 7,206,161 | 707,180 | 6,498,981 |
| 4. INFRASTRUCTURE: Irrigation, Flood Control, Construction | 11,238,613 | 300,881 | 10,937,732 |
| 5. ENVIRONMENT | 1,360,045 | 23,701 | 1,336,344 |
| 6. INCOME GENERATION | 6,658,755 | 765,480 | 5,893,275 |
| 7. OTHER | 4,741,650 | 1,221,216 | 3,520,434 |
| Sub-Total: | 79,769,496 | 22,723,539 | 57,045,957 |
| Return of Refugees from Neighboring Countries | | | |
| 1. PROTECTION | 5,247,109 | 0 | 5,247,109 |
| 2. REFUGEE RETURN MOVEMENT | 6,715,856 | 150,000 | 6,565,856 |
| 3. REINTEGRATION: Shelter, Water/Sanitation, Education, Health, Agriculture | 8,294,017 | 1,368,870 | 6,925,147 |
| 4. INTEGRATED: Integrated Project, Greater Azra Initiative | 7,266,472 | 366,220 | 6,900,252 |
| Sub-Total: | 27,523,454 | 1,885,090 | 25,638,364 |
| Multi-Thematic | | | |
| 1. COORDINATOR | 11,495,900 | 4,631,200 | 6,864,700 |
| 2. CAPACITY BUILDING | 603,229 | 68,376 | 534,853 |
| 3. BLOOD | 53,620,000 | 44,090,000 | 9,530,000 |
| Sub-Total: | 65,719,129 | 48,789,576 | 16,929,553 |
| Total: | 274,727,960 | 90,015,953 | 184,712,007 |
| PRIORITY TOTAL: | 188,412,725 | 75,448,983 | 112,963,742 |

N.B. Shaded sections indicate priority areas identified by the UN Coordinator in December 1998.

Terms of Reference for the Study

The livestock sector plays a vital role in the economy of Afghanistan. However, reliable information on Afghan animal agriculture is very scanty. Currently FAO (Livestock), UNDP and NGOs prepare a few reports on the livestock sector in Afghanistan, mainly describing projects focusing on veterinary and artificial insemination activities. Not much is known about the size and role of this sector in the Afghan economy. This study would attempt to evaluate the Economic role of the livestock sector in Afghanistan's economy, including providing an overview of this sector, estimating roughly the size of the sector in GDP; discussing regional differences in livestock varieties and uses; broadly describing the types of programs and activities in support of the livestock sector; and looking at constraints faced by the sector. This is a desk study, which would compile scattered data on various aspects of livestock production and economics from available materials (e.g. reports, databases on the Internet, personal contacts with professionals, etc.). Comparisons between pre-war and post-war conditions, livestock production systems, and the relative contribution of livestock in the economy will be made wherever possible. This study would complement another desk study being conducted on the Afghanistan's agriculture, mainly focusing on cereal production, as part of the Post-conflict funded Afghanistan Watching Brief Program, executed by UNDP (Afghanistan).

The study would focus on the following aspects of the livestock sector in Afghanistan.

1. Overview of Livestock Sector:

- Economic importance of livestock in the agricultural production system.
- Description of various types of livestock (native, exotic and crossbred).
- Description of feed/fodder management and seasonal production patterns.

- Brief account of common diseases and status of animal health and artificial insemination.

2. Contribution of Livestock Sector:

- Compilation/estimation of data on livestock population, growth rates and productivity; production of livestock products (milk, meat, hides & skins, wool, etc.); prices of livestock and livestock products.
- Estimation of the gross value added and the share of livestock sector in the economy. This would include estimating aggregate value added of livestock products; estimation of main input costs, etc.

3. Programs/Projects and Constraints:

- Description of existing infra-structure for livestock development, disease control, etc.
- Summary and analysis of livestock development/rehabilitation programs by UN agencies, NGOs, and public and private programs.
- Constraints and gains related to livestock programs/projects in the sector (economic, biological, etc.).

Task Responsibilities

The consultants would be responsible for collecting materials and compiling data as needed. They may also conduct interviews of those knowledgeable on the livestock sector in Afghanistan, including individuals in UN agencies and NGOs. All interviews and travel for the study would be conducted in Pakistan; no travel to Afghanistan would take place during the course of the study. The consultants would be responsible for preparing the draft and final reports, comprehensively reviewing the literature on the role of the livestock sector in Afghanistan.

The consultants will provide the World Bank the materials collected, along with the final report, and data collected.

