AFRICAN DEVELOPMENT FUND

GHA/PAAL/2001/01
Language: French
Original: French

APPRAISAL REPORT

LIVESTOCK DEVELOPMENT PROJECT

REPUBLIC OF GHANA

NB: This document contains errata or corrigenda (see Annexes)

COUNTRY DEPARTMENT
WEST REGION

OCDW
AUGUST 2001

SCCDD : N.G.

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PROJECT INFORMATION SHEET

1.	**COUNTRY**	**:**	Republic of Ghana
2.	**TITLE OF PROJECT**	**:**	Livestock Development Project
3.	**LOCATION**	**:**	Twenty-five (25) districts located in seven regions, namely Upper East, Upper West, Northern, Ashanti, Brong Ahafo, Greater Accra, and Volta Regions of Ghana.
4.	**BORROWER**	**:**	Republic of Ghana
5.	**EXECUTING AGENCY**	**:**	Ministry of Food and Agriculture, Animal Production and Veterinary Services Directorates, P. O. Box M37, Accra, Ghana. Tel: (233) 21 666374; Fax: (233) 21 670274 **E-mail:** apd@ghana.com **E-mail:** vetsdept@africaonline.com.ghana

6. PROJECT DESCRIPTION: The project has five main components, which are A) Development of Animal Production, B) Development of Animal Health, C) Credit provision, D) Capacity Building, and E) Project Management. The main activities will include Animal Breeding, Control of Major Animal Diseases, Improve Animal Husbandry through the provision of short- and medium-term credits for financing production, processing and marketing activities as well as training of staff, farmers and entrepreneurs. The project will also make provision for HIV/AIDS, Guinea worm, and Malaria prevention campaigns.

7.	**TOTAL COST**	:	UA 22.07 million
	Foreign exchange	:	UA 18.31 million
	Local cost	:	UA 3.76 million
8.	**ADF LOAN**	:	UA 19.58 million
9.	**OTHER SOURCES OF FINANCE**		
	Government of Ghana (including Beneficiaries):		UA 2.31 million
		:	UA 0.04 million
10.	**DATE OF APPROVAL**	:	September 2001
11.	**PROBABLE COMMENCEMENT DATE AND PROJECT DURATION**		
	Commencement	:	**February** 2002
	Duration	:	6 Years

12. PROCUREMENT OF GOODS, WORKS AND SERVICES

Procurement of civil works relating to rehabilitation of farm, laboratory, quarantine and office buildings as well as construction of bore holes and dugouts will be by National Competitive Bidding. Procurement of motorbikes, trucks and bicycles will be under International Competitive Bidding procedures. The procurement of various types of equipment and farm implements will also be under International Competitive Bidding procedures. The purchase of breeding animals, for six breeding stations will be by National Shopping, in small bid sizes, given that there are four types of livestock to purchase. All consulting services required for the project will be procured through competition on the basis of a short list. For external audit of the project accounts, the mid-term review and review of project management, procurement of consulting services will be done through a short list of consultancy firms at national/regional levels considering the small amounts involved. The selection procedure based on the technical quality with price consideration shall be used. Training of livestock service providers will be done by specialised Government institutions (universities).

Contribution will be made to the Ministry of Health, specialised Government body, in support of HIV/AIDS prevention campaigns, and to the Guinea worm and malaria prevention activities. Goods, services and civil works that will be financed under the credit component will include improved breed animals, animal feed, drugs, milk processing equipment, and construction of animal housing structures. The purchase of goods, services and works will be carried out by the respective beneficiaries, in accordance with established commercial practices of the Agricultural Development Bank and acceptable to the Bank Group.

13. CONSULTANCY SERVICES REQUIRED

Consultancy services for group formation and training of producers valued at UA1.66 million will be required. Contract services to carry out mid-term review and annual audits of the project accounts will also be required. These services are estimated at UA0.16 million.

CURRENCY AND MEASURES

(May 2001)

UA 1	**=**	**¢ 9004.64**
US$ 1	**=**	**¢7113.85**

*FINANCIAL YEAR**: 1 January – 31 December***

WEIGHTS AND MEASURES

1 MT (Metric Tonne)	=	2,200 lbs. (pounds)
1 Kg (Kilogram)	=	2.2 lbs.
1 M (Metre)	=	3.28 ft (feet)
1 Ha (Hectare)	=	2.471 acres

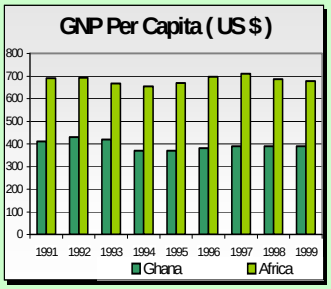
LIST OF ABBREVIATIONS AND ACRONYMS

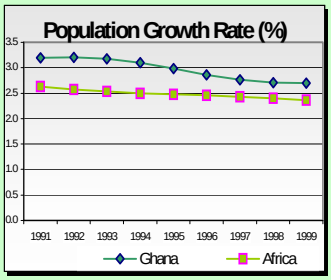
AAGDS	Accelerated Agricultural Growth and Development Strategy
ACHD	African Centre for Human Development
ADF	African Development Fund
AEA	Agricultural Extension Agent
AESD	Agricultural Engineering Services Directorate
AFD	Agence Française de Développement
AgDB	Agricultural Development Bank
AgSSIP	Agricultural Services Sector Investment Programme
AI	Artificial Insemination
APD	Animal Production Directorate
CEDEP	Centre for the Development of People
CLW	Community Livestock Worker
DADU	District Agricultural Development Unit
DDO	District Development Officer
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
FAO	Food and Agricultural Organisation of the United Nations
GOG	Government of Ghana
LPIU	Livestock Planning and Information Unit
MOFA	Ministry of Food and Agriculture
MOLF	Ministry of Lands and Forestry
NCWD	National Council on Women and Development
NLSP	National Livestock Services Project
NPAC	National Programme Advisory Committee
ONBS	Open Nucleus Breeding Scheme
PPMED	Policy Planning, Monitoring and Evaluation Directorate
PSC	Project Steering Committee
RADO	Regional Development Officer
RADU	Regional Agricultural Development Unit
SMS	Subject Matter Specialist
VSD	Veterinary Services Directorate
WIAD	Women in Agricultural Development

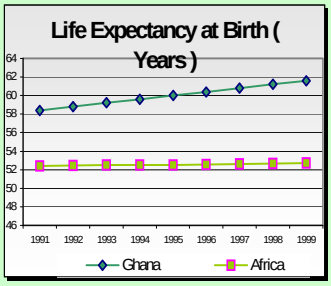
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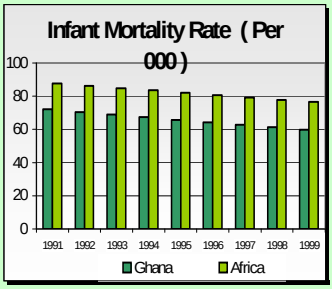
COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Ghana	Africa	Developing Countries	Dev'd Countries
Basic Indicators					
Area ('000 Km²)		239	30,061	80,976	54,658
Total Population (millions)	1999	19.7	765.6	4,793.2	1,185.2
Urban Population (% of Total)	1999	38.0	37.1	39.4	75.8
Population Density (per Km²)	1999	82.5	25.5	59.2	21.7
GNP per Capita (US $)	1999	390	684	1,250	25,890
Labor Force Participation - Total (%)	1999	47.5	43.3	…	…
Labor Force Participation - Female (%)	1999	47.7	35.0	…	…
Gender -Related Development Index Value	1998	0.6	0.483	0.634	0.916
Human Development Index (Rank among 174 countries)	1998	129	n.a.	n.a.	n.a.
Population Living Below $ 1 a Day (% of Population)	1995	...	45.0	32.2	…
Demographic Indicators					
Population Growth Rate - Total (%)	1999	2.7	2.4	1.6	0.3
Population Growth Rate - Urban (%)	1999	3.8	4.5	2.8	0.6
Population < 15 years (%)	1999	43.5	42.7	32.8	18.5
Population >= 65 years (%)	1999	3.1	3.2	5.0	14.0
Dependency Ratio (%)	1999	79.7	86.1	61.0	48.6
Sex Ratio (per 100 female)	1999	99.0	99.4	103.3	94.8
Female Population 15-49 years (millions)	1999	4.5	181.1	151.8	297.2
Life Expectancy at Birth - Total (years)	1999	61.6	52.7	64.3	75.5
Life Expectancy at Birth - Female (years)	1999	63.4	53.5	66.0	79.2
Crude Birth Rate (per 1,000)	1999	36.2	36.3	23.4	10.9
Crude Death Rate (per 1,000)	1999	8.8	13.7	8.4	10.3
Infant Mortality Rate (per 1,000)	1999	59.7	76.4	57.6	8.9
Child Mortality Rate (per 1,000)	1999	86.2	116.6	79.8	10.2
Maternal Mortality Rate (per 100,000)	1990-96	740	698	491	13
Total Fertility Rate (per woman)	1999	4.8	4.8	2.8	1.6
Women Using Contraception (%)	1990-99	22.1	…	56.0	70.0
Health & Nutrition Indicators					
Physicians (per 100,000 people)	1992-97	6	35	78	287
Nurses (per 100,000 people)	1992-97	72	107	98	782
Births attended by Trained Health Personnel (%)	1992-98	44	38	58	99
Access to Safe Water (% of Population)	1992-98	56	58	72	100
Access to Health Services (% of Population)	1992-98	...	64	80	100
Access to Sanitation (% of Population)	1990-97	32	58	44	100
Percentage of Adults (aged 15-49) Living with HIV/AIDS	1997	2.4	5.7	…	…
Incidence of Tuberculosis (per 100,000)	1997	59	201	157	24
Child Immunization Against Tuberculosis (%)	1997	72	72	82	93
Child Immunization Against Measles (%)	1997	59	64	79	90
Underweight Children (% of children under 5 years)	1990-97	27	26	31	…
Daily Calorie Supply	1998	2,586	2,439	2,663	3,380
Public Expenditure on Health (as % of GDP)	1993-98	1.6	2.0	1.8	6.3
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	1996	75.0	80.0	100.7	102.3
Primary School - Female	1996	69.8	73.4	94.5	101.9
Secondary School - Total	1996	30.9	29.3	50.9	99.5
Secondary School - Female	1996	24.0	25.7	45.8	100.8
Primary School Female Teaching Staff (% of Total)	1990-97	34.4	40.9	51.0	82.0
Adult Illiteracy Rate - Total (%)	1999	29.8	38.8	27.2	1.3
Adult Illiteracy Rate - Male (%)	1999	20.7	30.7	19.5	0.9
Adult Illiteracy Rate - Female (%)	1999	38.6	48.2	35.0	1.7
Percentage of GDP Spent on Education	1990-97	4.2	3.5	3.9	5.9
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	1998	15.8	5.9	9.9	11.6
Annual Rate of Deforestation (%)	1990-95	1.3	0.7	0.4	-0.2
Annual Rate of Reforestation (%)	1981-90	2.0	4.0	…	…
Per Capita CO2 Emissions (metric tons)	1996	0.2	1.1	2.1	12.5









Source : Compiled by the Statistics Division from ADB databases; UNAIDS; World Bank Live Database and United Nations Population Division.

Notes: n.a. Not Applicable
... Data Not Available

Last update: May 2001

PROJECT LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS/ RISKS
Sector Goal Contribute to poverty reduction, enhanced food security and reduce imports of livestock and dairy products in an environmentally sustainable manner	1. Number of food insecure farmers reduced 2. Quantity of imported livestock and dairy products reduced	1. National Government Statistics	
Project Objective Incomes of smallholder livestock and dairy farmers, processors and traders increased.	At project full development annual gross incomes increased as follows: 1. Small ruminant farmers from GHC 1.5m to 3m, with net income of GHC1.17m 2. Pig breeders from GHC17.5m to 33.6m, with net income of 2.6m 3. Peri-urban dairy from GHC2.7m to 5.6m, with net income of GHC5m 4. Milk processing from GHC1.3m to 15.8m, with net income of GHC3.5m 5. Extensive dairy with 100 heads of cattle from GHC39.5 to 74m, with a net income of GHC30m. 6. Improved grazing from GHC45.5m to 68m, with net income of 17m	1. Progress reports 2. MOFA records 3. Supervision mission reports	1. Farmers, traders & processors follow through with the expressed interest to participate during implementation.
Outputs **1. Livestock Breed Improvement** 1.1. Improved productivity of indigenous breeds of livestock	1.1 Twenty per cent increase in production efficiency of indigenous breeds of livestock annually by PY5.	1..Progress reports 2. MOFA records 3 Supervision mission reports	1. Farmers, traders & processors follow through with the expressed interest to participate during implementation.
1.2. Increased sales of cattle, sheep, goats and pigs by farmers	1.2 Ten percent increase in offtake of livestock from participating farmers by PY6		
2. Dairy Improvement 2.1 Development of production from crossbred dairy cattle in intensive systems, linked with collection, marketing, and processing systems.	2.1a 1,200 crossbreed dairy cattle produced by PY6 2.1b Milk collection, marketing and processing system established and operating by PY6.		
2.2. Improved production efficiency, collection, marketing and processing of milk from herds of indigenous dairy cattle	2.2 Increase in milk production/cow/day in extensive production systems from 0.5kg to 1.0kg, by PY2.		
3. Communal Grazing Land Improvement 3.1. Livestock access to improved quality fodder	3.1 3,000 ha of communal grazing land improved by PY4		
3.2 Increase of livestock products from communal grazing systems	3.2 Twenty per cent increase in livestock production from communal grazing systems by PY5.		

PROJECT LOGICAL FRAMEWORK (Cont'd)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS/RISKS
4. Control of Major Diseases			
4.1. Control measures for Newcastle disease developed and implemented	4.1 Reduction in mortalities due to Newcastle disease from 55% in unvaccinated to 15% in vaccinated birds by PY2.	4.1 VSD records and reports, 4.2 National statistics	4.1 There are no major disease outbreaks before the completion of vaccination activities.
4.2. Control measures for "Peste des petits ruminants" (PPR), brucellosis Contagious Bovine Pleuropneumonia (CBPP) developed & implemented	By Y2: 4.2 Mortality due to PPR reduced from 45% in unvaccinated to 15% in vaccinated animals. 4.3 Deaths from CBPP reduced by 10% in unvaccinated animals 4.4 Calving rate increases from 55% in unvaccinated animals to 70% in animals vaccinated against brucellosis.	VSD records and reports. National statistics.	
5. Tsetse Control			
5.1. Tsetse fly population reduced to manageable levels and maintained	5.1 Tsetse prevalent in target areas reduced to less than 5% by end of PY4 & livestock productivity increase by 30% by PY6.	VSD records and reports	
Activities	**Resources:** 1. Finances		
1. Livestock Breed Improvement			
1.1 Restock 6 Livestock Breeding Stations with replacement livestock	**Source** — **Amount** ADF Loan — UA 19.58 million GOG Contribution — UA 2.45 million Beneficiaries Contribution — UA 0.04 million **Total** — **UA 22.07 million**	MOFA reports	
2. Dairy Improvement			
2.1 Intensive breeding for Crossbred Cows in Peri-urban Areas			
* Insemination of sanga cows at Amrahia and in farmers herds			
* Development of forage plots			
2.2. Extensive Milk Production Systems			
3. Communal Grazing Land Improvement	**2. Budget**		
3.1 Over sowing of communal grazing areas	**Component** — **Amount** Animal Production — UA 8.07 million Animal Health — UA 2.58 million Credit — UA 4.14 million Capacity Building — UA 5.13 million Project Management — UA 2.15 million Total Project Cost — UA 22.07 million	MOFA records	Farmers willing to purchase seed.
4. Control of major diseases		MOFA, Group records	
4.1. Surveillance			
4.2 Vaccinate animals against endemic diseases		Survey reports and publications	
4.3 Rehabilitation of veterinary checkpoints and quarantine stations		VSD records	
4.4 Adoption of New Disease Control Technologies		Laboratory, District, VSD reports	
5. Tsetse Control			
5.1 Establish control units and undertake full scale control operations in surveyed areas		District, VSD reports	
6. Capacity Building and Human Resources Development (VSD)			
6.1 Preparation of training manuals, Group formation, Training of staff, Training of farmer groups, processors, traders		Manuals produced	

EXECUTIVE SUMMARY

Project Background: Livestock production is an important feature of Ghana agriculture, contributing largely towards meeting food needs, providing draft power and generating cash income. It is a major source of income for farmers in the three northern regions of Ghana. The livestock sub-sector contributes an estimated 7% to agricultural GDP, hence it makes a significant contribution to overall agricultural development. Cattle production is an integral part of the farming systems in northern Ghana, where an estimated 50% of farmers in the Upper West and Upper East regions use bullocks for ploughing. Studies show that bullock-owning households cultivate 60% more land than those who do not.

Despite the country's vast resources of forage, its livestock resource base is modest with about 1.3 million cattle, 2.5 million sheep, 2.7 million goats, over 10 million poultry, including guinea fowl, and 0.37 million pigs. The per capita consumption of livestock products in Ghana is 1.08 kg for beef, 0.70 kg each of small ruminants and poultry meat, 0.49 kg of pig meat, 1.46 litres of milk and 18.9 eggs per year. These levels of consumption are only 6.7% of the averages for Africa and only 2% of the FAO recommended levels. Livestock production offers rapid growth opportunities, as the necessary internal market exists, the potential for increased production of feed is high and the technology for controlling diseases and improving productivity is available. Increased livestock production will increase farmers' incomes, which will, in turn, contribute to reduction of poverty. The proposed project is in response to Government of Ghana request, in the year 2000, to consider financing a livestock development project, and it is in line with the Government of Ghana strategy for the development of the agricultural sector. The project is also consistent with the Bank Group development strategy for Ghana, which emphasises poverty reduction.

Purpose of the Loan: The ADF loan of UA19.58 million, amounting to 88.7% of the total project cost estimated at UA22.07 million will be used to finance 99.2% of foreign exchange (UA18.17 million) and 37.5% of local cost (UA1.41million).

Sector Goal and Project Objectives: The sector goal is to reduce poverty, improve food security and reduce imports in an environmentally sustainable manner. The specific objective of the project is to increase incomes of smallholder livestock and dairy farmers, processors and traders in the project area.

Cross Cutting Issues: Under the recently established cross cutting issues classification system, the project was given a score of two on poverty reduction. For gender, economic growth and private sector development the project was given a score of one.

Brief Description of the Project's Outputs: As a result of the proposed intervention, livestock breeding stations will be strengthened, which will put in place a sustainable improved livestock-breeding scheme in Ghana. Disease surveillance and control will be strengthened, which will reduce the mortality rate of various types of livestock by at least 30%. Livestock productivity will improve through improved nutrition of livestock due to increased production of forage feed for livestock and improved animal husbandry through training of small-scale producers. The project has five main components, and they are A) Development of Animal Production, B) Development of Animal Health, C) Credit provision, D) Capacity Building, and E) Project Management. The main outputs will be: i) Improved availability of genetically superior types of goat, sheep, cattle and pig through animals produced on Livestock Breeding Stations and by farmers participating in an Open Nucleus Breeding Scheme (ONBS); ii) Increased production of milk from crossbred cattle in peri-urban areas and from indigenous mainly sanga cattle, in rural

areas; iii) Increased availability of higher quality livestock feed by over sowing ("reinforcing") native pastures with leguminous species and by contributing to quality assurance of concentrate and compound feeds; iv) Increased availability of water for people and animals by constructing dugout (water catchment points) and boreholes; v) Reduced disease burden of livestock and improved animal (and consequently human) health by implementing activities that will control or eradicate the main infectious diseases and zoonoses; and vi) Strengthened public sector Institutions and increased human resource capacity in both public (agricultural production, health extension services) and private (farmers and other stakeholders) sectors through training.

Project Cost: The total project cost is estimated at UA22.07 million of which UA18.31 million (82.96%) will be in foreign currency and UA3.76million (17.04%) will be in local currency.

Source of Finance: The ADF and GOG will finance the project. ADF funds will be utilised to finance animal breed improvement, dairy improvement, communal grazing land improvement, development of water resources, support control of major animal diseases, tsetse control, credit for livestock production, institutional capacity building and project management. Total ADF contribution representing 88.7% of the total costs will be used to cover 99.2% of the foreign exchange costs and 37.5% of local costs, which represent 6.4% of the total project cost. The GOG contribution of UA2.45 million representing 11.1% of the project total cost will be utilised to cover vehicles staff salaries, office utilities, and operating & maintenance costs.

Project Implementation: The project will be implemented over a period of six years. The overall implementation of the project activities will be the responsibility of the Ministry of Food and Agriculture through its Animal Production and Veterinary Services Directorates .

Conclusions and Recommendations: The Livestock Development project will assist the GOG in the implementation of its livestock development policies and strategies stipulated in the country's vision 2020 and the underlying AAGDS. From animal production activities, the project will increase the total production by 180,130 tonnes of livestock products and 46,470 tonnes of dairy products during the six years of project implementation valued at UA 13.5million and UA8.3million, respectively. It will directly benefit more than 19,000 farmers, processors and traders and create additional 9,500 seasonal jobs. The project will also contribute to generating stable employment. The cross breeding program will improve livestock productivity, including increase in milk production from 1.5 litres to a minimum of 10 litres per cow per day and an average of 25% increase in the cattle, goats and sheep selling weight over the same period. All proposed activities will be carried out in an environmentally sustainable manner. The credit facility will enable smallscale farmers to access inputs, and markets for their output. Through group formation beneficiaries will be able to participate in the economic development of their communities. Veterinary services activities will help to control major disease and hence reduce the mortality of livestock ranging from 5% for vaccination against Contagious Bovine Pleuropneumonia to 40% for vaccinations against Newcastle in chickens.

The project as designed is technically feasible, socially desirable, financially and economically viable and environmentally friendly. Project activities will be implemented on a beneficiary demand basis, to ensure beneficiary participation and adoption of the recommended practices. The project is consistent with the Bank Group Vision statement as well as the Bank strategy for Ghana. It is also consistent with the goal of the Ghana Government to substantially reduce the importation of animal products by promoting local livestock production. The project supports Government's efforts to increase national food security, and it is expected to contribute to rural employment and enhance rural incomes.

1. ORIGIN AND HISTORY OF THE PROJECT

1.1 Livestock production is an important feature of agriculture in Ghana, contributing largely towards meeting food needs, providing draft power and generating cash income. The livestock sub-sector contributes in direct products an estimated 7% of agricultural GDP. It is also a major source of income for farmers and makes an important direct contribution to overall agricultural development and food security. Cattle production is an integral part of the farming systems particularly in northern Ghana, where an estimated 50% of farmers in the Upper West and Upper East regions use bullocks for ploughing. Despite the country's vast resources of forage, its livestock resource base is modest with about 1.3 million cattle, 2.5 million sheep, 2.7 million goats, over 10 million poultry, including guinea fowl, and 0.37 million pigs. Livestock production offers rapid growth opportunities, as the necessary internal market exists, the potential for increased production of feed is high and the technology for controlling diseases and improving productivity is available.

1.2 Under Ghana's Vision 2020 socio-economic development initiative, emphasis is put on the development of all sub-sectors of agriculture with all its sub-sectors as an important means of achieving national food security, contributing to reduction of poverty and reducing imports in an effort to reduce the burden on the balance of payments. Poverty remains high in rural areas in spite of over ten years of economic reforms. Nearly 58% of Ghana's poor derive primary income from farming and other farm-based activities. Therefore, strong and broad-based agricultural sector growth will reduce the level of rural poverty.

1.3 The National Livestock Services Project (NLSP) of 1993 to 1999 made a significant contribution to livestock development in Ghana. Since the end of this project, and given the current pressing needs on Government finances, some of the infrastructure set up by the NLSP has deteriorated and the sector activities have slowed down. It became apparent that unless there is urgent action to arrest the decline, not only will the sector fail to provide the means to generate income for the farmers but its contribution to the economy will be significantly reduced. To consolidate and extend the gains made by the NLSP and in line with the vision 2020 as well as the Agricultural Sector Service Program, GOG requested the Bank Group to consider financing a Livestock Development Project. The Bank responded by commissioning the Food and Agricultural Organisation of the United Nations (FAO) Investment Centre to identify a Livestock Development Project, which was later, prepared in April 2001. Following examination of the preparation report, an ADF mission appraised the project in May 2001. This appraisal report is based on the information collected during the these missions.

2. THE AGRICULTURAL SECTOR

2.1 General Features

2.1.1 Agriculture, comprising crops, livestock, fisheries and forestry sub-sectors, is the dominant sector of the Ghanaian economy. In 2000, the agriculture sector directly employed about 65% of the work force, accounted for 43.8% of total export earnings and contributed 41% to the Gross Domestic Product (GDP). The country Rural Development Indicators show that the rural population represents 63% of the total population of 19.2 million. Eighty-five percent of farmers are small holders, with less than two hectares of land, farming principally under rain-fed conditions and producing food crops and livestock for subsistence.

2.1.2 Agricultural production patterns comprises tree crop production, including rubber, oil palm, coconuts, cocoa and coffee in the forest zone, to food crops such as cereals and food legumes, vegetables, tobacco, yam, and cassava in the northern and transitional Savannah. Mixed farming, production of crops combined with raising of livestock, is practiced in all of the regions. This contributes considerably to food security since it broadens the economic base at household level. Livestock production is a major component of farming systems in Ghana. This has been demonstrated by the high prevalence (98%) of mixed farming systems amongst smallholder farmers in 2000.

2.2 Land Tenure and Land Use

2.2.1 Land Tenure*:* There are four main land tenure systems in Ghana, namely, individual, family, communal and Government or State lands. Most of the agricultural land is under communal ownership, which is controlled by lineage, or clan based land-owning groups and allocated to individuals or households on a usufructuary basis. Legally, both men and women can access land as long as they are recognized members of the local community. In practice, men tend to have access to larger, more fertile plots. They also have greater security of land tenure, particularly in the northern regions of the country. This situation has been amplified in recent years as pressure on the land has grown due to population growth and deterioration of the quality of the land.

2.2.2 The national Land Policy published in June 1999 provides a framework for free access to land by all Ghanaians provided that: a) land is available for disposal in any part of the country where a male or female operator seeks to have it; b) the individual agrees with land owners to adhere to the covenants and other customary practices governing the disposal of the land; c) the individual undertakes to put the land to a use which conforms to land use plans for the area and to principles of sound land use and management. The policy document also stipulates that all traditional sources of land tenure and rights are recognised as legitimate sources of land titles and law protects such tenure rights.

2.2.3 Land Use*:* Land use in Ghana can be grouped into eight major categories, namely; i) forest reserves (approximately 11% of the total land area); ii) wildlife reserves (5%); iii) unreserved high forest (2%); iv) savannah woodlands (30%); v) tree crops (7%); vi) annual crops (25%); vii) unimproved pasture (15%); and viii) bush fallow and other uses (5%).

2.2.4 Out of a total land area of 23.9m ha, 13.6m ha are suitable for agricultural production. Only 40% of the arable land were actively cultivated in the year 2000. Unimproved pasture covers 3.6m ha (15%) of the national territory. Livestock feed is often derived from bush fallow which accounts for 6m ha (25%) of the land area and from savannah woodland 7.1m ha (30%). Natural grazing lands are owned and used communally. There are no formal arrangements for access to this resource where it has not been improved and all people with animals may make use of it. Where there has been improvement, those taking part in the improvement at village or association level control the land.

2.3 Poverty, Food Security and Livestock

2.3.1 Forty-three percent (8.26 million) of the population in Ghana are classified as living in poverty or extreme poverty. Two million people classified as living in poverty are unable to meet their food and other needs, while the six million classified as living in extreme poverty are unable to meet even their most basic food needs. Fifty-eight percent of those identified as poor are in the agriculture sector, most of whom rear livestock, especially small ruminants. The

erratic rainfall pattern, coupled with the rudimentary technology used in most production processes lead to fluctuations in food production from year to year, which causes food insecurity. In times of insufficient crop production, livestock, mainly small ruminants and poultry, become the main source of food and income.

2.3.2 During the 1990s Ghana experienced a reduction in the percentage of the population living in poverty from 50% in 1992 to 43% by the year 2000. However, the northern regions, which are predominantly livestock farming areas have benefited little from the overall poverty reduction program, where the population living in poverty ranges from 70% to 90%. The extent of poverty in the northern regions is exhibited by the high under-five mortality rate which is double the national average, and the maternal mortality rates, which are four times the national rate. Adult illiteracy is another manifestation of poverty, particularly in rural areas where only 28% of women and 56% of men are able to read and write.

2.3.3 *HIV/AIDS* The prevalence rate of AIDS in Ghana is 4.6%. Sixty-three percent of those infected are women. Statistics show that the economically productive members of the society are the most commonly struck by the disease. Furthermore, the costs of treating the illness and the increased demands brought on by the care of the ill, dramatically affects resource poor households. AIDs affect human resource productivity and hence it is of direct concern to the agricultural sector and to the success of the Livestock Development Project.

2.4 Institutional Framework

2.4.1 Ghana has the institutional framework and the relevant professional expertise to implement the livestock development project. A number of institutions, which will be involved in the implementation of the project, will receive support from the project. The project will be co-ordinated by the AgSSIP Secretariat, which has the administrative management, procurement and accounting skills required to implement the project. Below are the profiles of key institutions that will participate in the implementation of the project

2.4.2 The Ministry of Food and Agriculture (MOFA) is responsible for the agricultural sector comprising crops, fisheries and livestock sub-sectors, with the exception of cocoa, coffee and forestry, which are dealt with by other Government Ministries. MOFA formulates agricultural policies, plans, monitors and evaluates national development programs in the sector. Since the adoption of the decentralisation policy in 1997, the Ministry of Food and Agriculture has been organised into nine technical directorates: Policy Planning, Monitoring and Evaluation (PPMED); Animal Production (APD); Crop Services (CSD); Agriculture Engineering Services (AESD); Women In Agricultural Development (WIAD); Plant Protection and Regulatory Services (PPRSD); Veterinary Services (VSD); Fisheries (DF), and the Agricultural Engineering Services (AESD).

2.4.3 MOFA Decentralised Institutions: Ghana is divided into ten Administrative Regions and 110 Districts. MOFA is decentralised at national, regional and district levels. Within this framework there are ten Regional Agricultural Development Units (RADUs) and 110 District Agricultural Development Units (DADUs). RADUs and DADUs are technically, financially and administratively responsible for co-ordinating, managing and implementing agricultural projects and programmes at regional and district levels, respectively. The Regional Director of Agriculture (RDA) is responsible for the agricultural sector in the region, and is assisted by Regional Development Officers (RDOs). Subject Matter Specialists (SMS) are stationed at the region while Agricultural Extension Agents (AEA) are located at the District level. In the District, the District Director of Agriculture heads the agricultural sector and is assisted by

District Development Officers (DDO). The District Assembly provides policy direction for the entire district, and operates under sector-specific committees.

2.4.4 The Animal Production Directorate (APD) is responsible for ruminant and non-ruminant production, as well as range and forage management and production. APD has 218 staff, out of which 27 are stationed at the head office. The remaining 191 are located at six breeding stations. The breeding stations are managed by the Directorate. Four types of livestock: dairy and beef cattle, goats, sheep, and pigs are bred at the stations. The dairy breeding farm also conducts Artificial Insemination services at the station. This service is also provided to farmers located within the vicinity of the breeding centre. All six breeding stations and the headquarters have the required professional skills and management personnel having successfully implemented, among others, the NLSP. However, there is need to rehabilitate farm structures and to provide more reliable water sources. The stations are constrained by lack of reliable modes of transportation including transporting of livestock.

2.4.5 The Veterinary Services Directorate (VSD) is responsible for Disease and Tsetse Control and Animal Health. To carry out its mandate the Directorate has a central veterinary laboratory located at Pong-Tamale in the Northern Region. There is also a laboratory in each of the ten regions. Five of the regional laboratories at Pong-Tamale, Accra, Kumasi, Ho and Takoradi are functioning but will require office and field equipment and urgent rehabilitation of buildings to carry out their task effectively. The remaining five laboratories require replacement of major equipment to enable them to provide the needed preventive treatment services to the livestock farming community. VSD has an Epidemiology Unit, which carries out epidemio-surveillance, as part of the international obligation for the country on international livestock disease control. The Directorate has very highly skilled professionals with satisfactory experience of whom 490 are senior staff and 726 are junior staff. Veterinary Staff are located throughout the country.

2.4.6 The Policy Planning, Monitoring and Evaluation Directorate (PPMED) co-ordinates activities of the entire MOFA. In particular it co-ordinates policy and strategy formulation. PPMED collects data and information for policy planning and analysis. The Directorate, with six divisions or units, monitors public development investments and the performance of the sector as a whole. *The Livestock Planning and Information Unit (LPIU)* specifically monitors and evaluates activities in the livestock sub-sector. The Unit has staff seconded from the APD and VSD. It gathers statistics and information on livestock production, processing and marketing. It also conducts surveys and produces reports and periodicals on livestock in Ghana. The AgSSIP Secretariat, the implementing agency, of projects in the agricultural sector is part of PPMED, and has been given the mandate to co-ordinate the implementation of public projects and programs in the agricultural sector. Both LPIU and AgSSIP are well staffed with professionals who have the appropriate skills. They have implemented projects funded by other donors. AgSSIP is carrying out all procurement under the recently approved Bank Group financed Food Crops and Cashew Development projects. LPIU and AgSSIP will require mobility and office equipment to adequately carry out additional activities under the proposed intervention.

2.4.7 The Agricultural Development Bank (AgDB) is currently the main source of finance for the agricultural sector, particularly for the smallholder rural operators. Rural and Community Banks (RCBs) and other rural based commercial banks are also a major source of financing for smallholder operators. RCBs are currently undergoing comprehensive capacity building under another Bank Group project co-financed with the World Bank and IFAD, the Rural Financial Services. It is envisaged that at the end of this project, RCBs will assist in channelling credit to

the rural communities. Established in 1965, AgDB has been the major channel for bilateral and multilateral credit schemes to agricultural production and to livestock sub-sector, specifically. It has a wide geographical coverage with 42 branches located in all ten regions and in most districts of the country. The bank lends to farmers directly or uses intermediaries to reach small holder clients. The AgDB also uses group lending and lending to Farmers' Associations, to broaden outreach.

2.4.8 The financial condition of the AgDB is very sound. This was further confirmed under the recent assessment of the institution by OPEV, under the 2nd and 3rd Lines of Credit performance evaluation. Between 1999 and 2000, AgDB increased its interest income by 113%. During the same period, profit before tax increased by 150%. Its return on assets has successively increased during the last three years from 4.96% in 1998 to 5.62% in 1999 to 7.78% in 2000. Interest rates charged to farmers include 5% administrative cost, 5% profit margin, provision for bad debts and inflation. The return on capital has also followed the same trend. At present, the lending rate to the agricultural sector varies between 39% and 42% with the average lending rate being 40%.

2.4.9 The AgDB has shown its capacity to administer lines of credit when it satisfactorily managed three lines of credit for the Bank Group, between 1982 and 1998. The financial institution is currently managing another line of credit for the Bank Group, the Fourth Line of Credit, which became effective in June 2000. Recovery rates from its agricultural sector clientele fell from 72% in 1998 to 58% in 1999, due to floods which led to the poor performance of the sector in 1999. Recovery rates have since picked up again to 86% in 2000.

2.4.10 Non-Governmental Organisations (NGOs) have been involved in farmer group formation by providing technical assistance services. They also act as credit intermediaries between lending institutions and smallholder operators in the agricultural sector. An umbrella organisation, the Ghana Association of Private Voluntary Organisations in Development (GAPVOD) co-ordinates NGOs in the country. There are several international NGOs, which have been implementing projects in a participatory manner for a long time in Ghana. NGOs are playing a key role in the implementation of Bank Group financed project activities in group formation and beneficiary participation activities, under the Kpong Irrigation project, and the recently approved Food Crops Development project.

2.4.11 Private Sector*:* The GOG development strategy focuses on enhancing private sector participation. The aim of this strategy is to reduce the drain on government funds which arises from Government involvement in production activities. Enhanced private sector participation is enabling the Government to concentrate its activities on policy planning, monitoring and guidance. Farmer co-operatives and private companies now handle the marketing of livestock and livestock products, animal feed, and veterinary inputs, which until recently was carried out by government agencies. These companies have the capacity to import and distribute inputs to farmers across the country. During the last decade alone there has been a considerable increase in private operators undertaking livestock intensive production, marketing and processing and vast opportunities exist also in agro-industry.

2.4.12 Environmental Protection Agency (EPA): The EPA formulates the national environmental policy, and co-ordinates and monitors activities that could have an impact on the environment. The EPA ensures that development plans and programmes take into account environmental concerns through Environmental Impact Assessments (EIA). EPA also ensures that there is regular monitoring of pre-determined environmental indicators. Where necessary, EPA enforces the environmental law. It disseminates public information on the state of the

environment and carries out non-formal education programmes. The agency has the necessary manpower and capacity to undertake the responsibilities entrusted to it.

2.4.13 Other Institutions: Other institutions such as the Agricultural Engineering Services Directorate and the Women in Agriculture Department have the capacity to supervise the implementation of project activities in collaboration with the Project Management Unit.

2.5 Agricultural Development Policy and Strategy

2.5.1 The overriding objective of the GOG economic development program is to reduce poverty and attain general improvement in the welfare of Ghanaians. A 25-year perspective plan for national development, the Vision 2020, launched in 1995, envisages an increase in employment and average incomes leading to reductions in poverty levels and inequalities. The ultimate aim of Vision 2020 is to transform Ghana into a middle-income country by the year 2020. Under the vision, key objectives for the agricultural sector include: i) to ensure food security and adequate nutrition for all Ghanaians; ii) to supply raw materials and other inputs to other sectors of the economy, iii) to create employment in rural areas; iv) to encourage balanced regional development; vi) to increase the sector's contribution to GDP. The Government's sector objectives are in line with the Bank Group's Vision and Strategy.

2.5.2 To attain the rate of economic growth (8%) required to make the envisaged transformation into a medium-income country, the agricultural sector is expected to play a key role, through 1997-2007 Accelerated Agricultural Growth and Development Strategy (AAGDS). Through this strategy Ghana expects to increase the agricultural growth rate from 3-4% (achieved between 1995-99) to 5-6%. These rates of growth will result in an increase in the annual agricultural contribution to GDP from an average of US$2.9 billion to about US$5.5 billion, within an estimated overall GDP of US$15 billion. Agricultural sector policies are based on five major elements: promotion of selected products through improved access to markets; development and improved access to technology for sustainable natural resource management; improved access to agricultural financial services; improved rural infrastructure; and enhanced human resources and institutional capacity. For the livestock sub-sector, Government policy is to promote diversification of agriculture through livestock and poultry production, through promotion of smallholder livestock and poultry productivity and by controlling major diseases.

2.5.3 The GOG has prepared a development strategy for poverty reduction articulated in the Interim Poverty Reduction Strategy Paper (PRSP), based on the Vision 2020. The PRSP draws upon the AAGDS and GOG Comprehensive Development Framework. The aims and objectives of the AAGDS are in line with the PRSP. The AAGDS also provides the basis for the preparation of the Poverty Reduction Strategy Paper. The interim PRSP, has identified promoting accelerated growth in agriculture as a priority and critical component of the overall focus on poverty reduction. The government proposes to enhance productivity of the poor by promoting access to improved technology and financial services.

2.5.4 A key instrument for implementing the PRSP and the AAGDS is the Agricultural Services Sector Investment Program (AgSSIP). AgSSIP is a 3-year phase programme coinciding with GOG 3-year rolling Medium Term Expenditure Framework (MTEF). It has been adopted as the main development programme in the medium term to address poverty reduction. Under AgSSIP, all development interventions in the sector will follow unified procedures as far as possible. The programme will be demand driven, focusing on agricultural diversification and improvement in productivity. AgSSIP is consistent with two basic

orientations of the Government. First, reliance on the private sector to lead investment and economic growth; and second, devolution of significant responsibilities from Central Government to District Assemblies.

2.5.5 The Livestock Development Project fits into GOG strategies for development of the agricultural sector, which lays emphasis on increasing and diversifying incomes for smallholder operators to reduce poverty in the rural areas.

2.6 Donor Supported Activities

2.6.1 A number of donors have supported and continue to support agricultural development in Ghana. Between 1973 and 2000, the Bank Group approved a total of 25 operations to the agricultural sector. Fifteen have been completed and ten are on going. The performance of the Bank portfolio in the sector has been rated satisfactory with significant improvements in the pace of project implementation. Bank interventions in the sector have focussed on poverty reduction and addressing problems faced by the farming communities in drought prone areas, mainly in the northern savannah and transitional zones. A summary of the Bank Group portfolio is attached in Annex 7.

2.6.2 Other major donors in the sector are the World Bank, IFAD, Department for International Development of the United Kingdom (DFID), European Union (EU), Canadian International Development Agency (CIDA), United States International Development Agency (USAID) and the Dutch Government.

2.6.3 The World Bank has supported a number of projects in the agricultural sector. They include, 1) the National Agricultural Extension Project (NAEP) and the National Agricultural Research Project (NARP) aimed at developing technologies, and establishing operational extension procedures, respectively; 2) in the Northern Region, a Low Risk Programme for the conservation of water and soils through low-cost water harvesting methods and construction of bunds; 3) in the livestock sub-sector, a National Livestock Services Project from 1992 to 1999 aimed at increasing meat, egg and milk production in order to raise small scale producer incomes; 4) the Village Infrastructure Project (VIP) launched in 1998 and aimed at improving and sustaining basic village-level infrastructure. IFAD interventions have mainly focussed on support to smallholder operators in the transitional northern regions. One of the projects funded by IFAD, the Root and Tuber Improvement Project, shares facilities and expertise such as buildings, and support staff with the Bank Group Financed Food Crop Development Project. The Agence Française de Développement (AFD) is presently supporting Lowland Rice Development in the Northern Region

2.6.4 The Promotion of Seed Production and Marketing in West Africa is a joint IITA/GTZ/CSIR intervention to improve the certified seed industry in Ghana. The Training of Trainers (TOT) and Farmers Field School (FFS) approaches have been promoted by FAO's Global IPM facility on integrated pest management in rice and by the UNDP-financed National Poverty Reduction Programme.

2.6.5 In order to optimise the use of Government human resources on project implementation and management, the Bank Group has been structuring its projects so that management facilities and committees are shared between Bank funded projects or with other similar donor projects. The Livestock Development project has been conceptualised within the coherent policy framework provided by the AAGDS and within the decentralisation strategy and institutional policy framework. This includes co-ordination of donor funded project under

AgSSIP secretariat to improve efficiency in the implementation of project activities. This approach will also build a sense of ownership by the Government and contribute to capacity building which will increase the likelihood of sustainability.

3. THE LIVESTOCK SUB-SECTOR

Livestock in Ghana plays a major economic, social and cultural role in the lives and livelihoods of small holder farmers, processors and traders. It is a source of protein hence contributes to balanced human nutrition. It acts as a bank and insurance in times of urgent financial needs, since it generates cash income. It also helps to maintain soil fertility and structure through manure. Livestock also provides draught power particularly in the northern regions, which enables bullock-owning households to cultivate 60% more land than those who do not. Women benefit from livestock, since they are able to own pigs and small ruminants, and are able to control income generated from these livestock.

3.1 Livestock Production

3.1.1 Livestock population is concentrated in the Guinea and Sudan Savannah vegetation zones of the 3 northern regions, which combined account for about 75% of the cattle population in Ghana. The relatively dry coastal savannah in the south accounts for about 15%. The remaining transitional and humid forest zones are sparsely populated with cattle because of the prevalence of tsetse flies, which transmit a killer disease, trypanosomiasis. Small ruminants and poultry are more evenly distributed throughout the country, where pigs are more concentrated in the forest belt and around urban centres. Domestic production of livestock has increased slowly but steadily over the last decade. Between 1991 and 2000 production levels increased by 13% for beef, 26% for sheep, 35% for goats and 21% for pork. Offtake rate for cattle is about 11% while for sheep and goats it is about 30%. This compares with 8% and 25%, respectively for cattle and sheep in purely pastoral systems of livestock production in Sub-Saharan Africa. In 2000, the country produced 20,000 tonnes of beef, 6,000 tonnes of goat meat, 7,000 tonnes of mutton, 9,000 tonnes of pork and 27,000 tonnes of milk. Animal skins and hides are processed in the country for the domestic and export markets. It is estimated that 2,000 tonnes of cattle hides and 1,000 tonnes each of goat and sheep skins are produced annually.

3.1.2 Livestock provides about 30% of the national protein intake. Fish is the main source of protein, particularly in southern Ghana. Average annual meat consumption is estimated at 50,000 tons compared with 250,000 tons of fish. The amount of meat imported fluctuates from year to year depending on foreign exchange availability, world market prices, and value of the Cedi against major international currencies. On the average Ghana imports 50% of its livestock consumption. In the year 2000, the country imported 15,600 tons of frozen and processed meat and poultry products, valued at Cedis 93billion (USD15.5 million). Estimates of the total number of live animals imported into the country are difficult due to poor records. During the same year 10,800 tons of milk products, valued at Cedis 13billion (USD2 million) were imported.

3.1.3 *Production systems*: There are two livestock production systems in Ghana, first, the mixed farming system which is more prevalent among small holder farmers and the pure livestock farming system, geared towards beef production, predominates in the three northern regions. Mixed farming system is the most dominant in Ghana, accounting for 95% of production. A few farmers practice commercial farming system, which involves housing animals and feeding them with prepared feed, and it is usually practised in peri-urban areas. Herd and flock sizes are generally small. Cattle herds, vary in size from 20 under mixed farming system to 200 heads under commercial system. Sheep and goat flocks average about

10 animals of mixed ages and sexes. Cattle production is based on extensive grazing with open access to crop residue grazing after harvesting, while small ruminants are often left to roam. Pig are usually confined and fed with prepared feed.

3.1.4 *Livestock Breeding*: As mentioned in paragraph 2.4.4, the GOG has been running six stations for breeding four types of livestock namely, cattle, sheep, goad and pig. The operation costs of the stations are part of the Government standard recurrent costs. In order to ensure sustainability of operations, the GOG established revolving funds for each of the stations, so that resources generated from the sales and services carried out at the station are used to meet operation costs. During the last three years, activities at these stations have been scaled down. Fewer livestock are being produced for the farmers, fewer farmers are being trained, the health and nutrition of livestock at the station are poor and the general farm infrastructure has deteriorated, partly due to normal wear and tear. In addition, most of the farm structures were damaged during the 2000 storm. The stations have limited mobility and farm machinery and implements have outlived their economic life. Stations are operating below capacity. At Pong-Tamale, a multi-species breeding station with a carrying capacity to stock 1,000 breeder cows, has 67 heads of cattle, limiting the provision of services to farmers under the Open Nucleus Breeding Scheme. There is therefore need to restock the stations with breeding animals. Seed pasture and fodder production has been discontinued due to lack of resources. All the stations have no reliable water source.

3.1.5 *Markets*: During the year 2000, Ghana consumed an estimated 49,000 tons of meat products and 37,800 tons of milk products. As indicated in paragraph 3.1.2, domestic livestock and dairy production accounts for approximately 50% of the national consumption, leaving the other 50% to be filled by imports. In 1998, Ghana imported 15,600 tons of meat and 10,800 tons of milk and dairy products. The domestic supply gap exhibits the availability of a large market for livestock and dairy products. Another indication of the supply gap is the continuing increase in the level of imports of livestock and livestock products. The recorded imports of live animals has increased from 44 tones in 1997 to 65 tones in 1999, while imports of livestock products during the same period increased from 22,000 tones to 32,060 tones. Imports of dairy products increased from 1,848 tones to 14,531 tones. As income levels continue to increase, the per capita consumption of livestock and livestock products will increase from the current levels, which are 2% of the FAO recommended.

3.1.6 *Prices*: Livestock and dairy prices are determined by supply and demand conditions. Prices of livestock and especially those of sheep and poultry fluctuate seasonally, where they peak during religious festivals. Price fluctuation margins range between 10% to 20%. In general, meat prices are high relative to fish by about 30% and hence offer good incentives to farmers for improving livestock productivity. In 2000, average retail prices in Accra were: beef Cedi 7,900/kg, mutton and goat meat Cedi 7,700/kg, chickens Cedi 12,500/kg, compared to kipper herring at Cedi 5,800/kg. The import parity price for beef was Cedis 10,780/kg. Meat and milk prices exhibited an upward trend during the last three years as supplies have declined mainly from the European Union suppliers. The project will produce additional 28,000 tones of live animals per year, starting from the Y6 of project implementation, which is too small to influence the local market price of meat.

3.2 Animal Health

3.2.1 Animal health has been identified as one of the major constraintsto increased livestock productivity in Ghana. A number of infectious and parasitic diseases pose danger to the livestock industry in Ghana. In cattle, Rinderpest has been eradicated. The remaining dangerous diseases include, Contagious Bovine Pleuro-pneumonia (CBPP), the main zoonoses (Tuberculosis, Brucellosis, Anthrax and Rabies), Foot and Mouth Disease, Trypanosomosis and tick borne diseases (Dermatophilosis, Babesiosis, Anaplasmosis and Heartwater). In small ruminants, "Peste des petits ruminant" (PPR), Mange and internal parasites are the major diseases. In poultry, the major epidemics of Newcastle Disease and Gumboro are common throughout the country. In pigs, mange and internal parasites predominate. Rabies is endemic throughout the country and a threat to humans.

3.2.2 Disease control and prevention is done by the Veterinary Services Department (VSD), through a network of District Veterinary Officers (DVOs), Animal Health Assistants (AHAs), Technical Officers and Community Livestock Workers (CLWs) who ensure that outbreaks of diseases of economic and public health implications is promptly reported and measures taken to curtail its spread. These activities have been scaled down due to lack of necessary transport, communication equipment and training funds. Annual vaccinations are carried out for most of these diseases and this has helped to keep disease morbidity and mortality low. The number of animals covered is however low and about 20% of the animals still die from vaccine preventable diseases. Previous experience particularly with the Pan-African Rinderpest Control (PARC) has shown that when the required inputs such as vaccines, vehicles and equipment are made available and staff motivated, it is possible to bring such diseases as Rinderpest under control. Ghana was given a provisional free status for Rinderpest in 1997. Experience gained from this achievement can be applied to the other endemic and vaccine preventable diseases such as PPR, Anthrax, Blackleg, Brucellosis, NCD and CBPP.

3.2.3 The tick borne diseases of Babesiosis, Heartwater and Dermatophilosis are particularly acute and cause high mortalities in exotic cattle and their crosses. VSD is currently working on a vaccine against Dermatophilosis. VSD operates a number of laboratories whose activities are disease diagnosis and vaccine productions. These laboratories are currently not functioning effectively. Buildings need rehabilitation. There is also need for laboratory chemicals and reagents. The epidemiological and disease surveillance unit within VSD, which monitors livestock diseases and responses to vaccination campaigns, lack equipment and transportation for sample collection and computers for more efficient data analysis. Trypanosomosis remains a big threat to both humans and livestock. Controlling the vector tsetse fly will save human lives and animal productivity will improve by as much as 100%. The unit responsible for this activity lacks the necessary inputs such as screens, traps, and computers for record keeping, as well as mobility. Currently, clinical veterinary services and protective vaccination against most diseases is paid for by farmers, while the GOG is responsible for controlling major disease outbreaks.

3.2.4 A number of diseases from the neighbouring countries threaten Ghanaian livestock as evidenced by the outbreak of the deadly African swine fever (ASF) in 1999. Staff from the VSD are stationed along boarder entry points to inspect animals and institute the necessary control measures to stop such incidences. The quarantine stations that are supposed to regulate animal movements and therefore restrict disease spread need repair, painting and supplies of veterinary drugs and branding equipment for animal identification.

3.3 Marketing and Processing

3.3.1 At village level, cattle, sheep and goats are sold to middlemen who transport them from the surplus northern regions to secondary markets in urban areas in southern Ghana, by foot or in small trucks, where they are sold to butchers, consumers or wholesalers. From these secondary markets, animals are then moved in larger lorries to terminal markets in Kumasi, Accra and Tema. This system follows well defined but casual rules and practices. Middlemen act as price brokers between traders and butchers. Their intimate knowledge of both the traders and the butchers provides some degree of trust that the prices negotiated are fair, the animals sold are not stolen or sick and when sales are made on credit, the terms are respected. Prices are determined by supply and demand conditions. Prices of livestock especially sheep and goats increase during festival seasons of Christmas, Easter and Ramadan.

3.3.2 A substantial amount of small ruminants are sold within the communities where they are slaughtered either in households or at local markets and transported as carcasses to small town butcheries and other outlets. An estimated 70% of animals slaughtered in Ghana originate from outside the country particularly along the northern border. All the meat produced locally is consumed within the country. Hides and skins are bought and processed for the small local leather market by the private sector.

3.3.3 There are two commercial milk-processing companies, which purchase milk from small scale milk collectors located within 25km of urban and peri-urban areas. Most locally produced milk is sold directly to consumers or small scale women processors. Milk is consumed fresh but the surplus particularly during the wet season when there is high production is mixed with cereals such as maize and millet flour and sold as “fura or lekri”.

3.4 Constraints and Opportunities

Livestock diseases constitute a major constraint to increased livestock production in Ghana. Farmers have shown interest in improved animal breeds from the six breeding stations. However, the stations have not been able to meet the demand of the farmers. Farmers are faced with limited feed supply, which is of poor quality, due to poor quality of grazing land and lack of means to transport the bulky crop residues. Sources of smallholder credit are limited. Technology to increase livestock productivity is available in Ghana. Local demand for livestock and livestock products is greater than local supply. Therefore, opportunities for increasing animal production and productivity exist, through improved animal breeds, and improved husbandry practices, to be accompanied by improved access to credit.

4. THE PROJECT

4.1 Project Concept and Rationale

4.1.1 The project is focused on reducing poverty and contributing to food security. To attain this goal, the project proposes to intervene in livestock production and processing since they are predominantly income-generating activities carried out by poor smallholder operators in rural areas. The criteria for selecting target areas, included consideration for districts where poverty is relatively severe and where the poor are concentrated. These areas are predominantly in the northern regions hence 60% of the areas under the project are in these regions.

4.1.2 Development of the livestock sub-sector will increase the contribution to GDP, given the potential for increased production coupled with the available market for the outputs. Despite the limited investments towards livestock, the sub-sector contributes 7% to agricultural GDP. By investing in livestock sub-sector the GOG is addressing one of the fundamental elements of its Vision 2020, to channel its limited investment resources to areas with high potential, encouraging a balanced regional development and targeting poorer segments of the population. Increased domestic livestock production will reduce the foreign exchange spent on livestock imports, which are currently 50% of the national supply. In this regard investment in the sub-sector among smallholder farmers will enhance food security and increase household incomes of the poor. The project is designed to promote livestock development while maintaining the farming system that is predominant in Ghana, by focussing on the four main types of animals raised by smallholder farmers. This approach will ensure that the wholesome predominant feature of the mixed farming system (comprising 98% of smallholder farms) will be maintained. Considering mixed farming system is well adapted to circumstances in Ghana, the project will have a higher rate of farmer participation during implementation.

4.1.3 Given the extensive prevalence of livestock diseases and the large amount of trans-humance of livestock, there is a risk of diseases from within and outside the country, which could completely wipe out the livestock population of Ghana if urgent preventive action is not taken. To adequately address the constraints to the livestock sub-sector, support to livestock health, is a component of the project. In order for smallholders to attain significant increase in livestock production and processing, the project will develop their skills in improved methods of animal husbandry and in basic management of their resources and enterprises. Training to upgrade skills of service providers will be provided so that specialist are better able to disseminate the requisite knowledge as well as address the challenges that farmers continually face. Through training, the required capacity during the implementation period and thereafter, and continuity in upgrading existing technologies will be ensured.

4.1.4 Small Scale farmers face diseconomies of scale in accessing inputs, credit, and markets for their output. Farmer mobilisation and training in group management will ensure high level of participation hence participation in the economic development of communities and the collective implementation of project activities. Since significant livestock production and processing require capital investment, which is limited in Ghana, credit resources will be provided under the project. The demand for credit among livestock farmers in Ghana is high, as demonstrated under the 3-year Fourth Line of Credit, currently financed by the Bank, where six months into the implementation of the project, the resource allocation to livestock were fully utilised. The design of the project has also factored in the need for logistical support. The Government of Ghana will be responsible for providing the FWD double cabins, which have been reduced to the minimum practicable.

4.1.5 A key strategy to ensure sustainability of project activities is participation of stakeholders in the design and implementation of the project. During preparation and appraisal, extensive consultations were held with farmer groups, Government ministries, EPA at the Headquarters as well as at regional and district level. During implementation these consultations will continue through national and district steering committees (at which all stakeholders are represented) as well as with beneficiary groups. Beneficiaries will be responsible for maintaining water points, which will be provided under the project. Through this approach, stakeholders will be involved in the definition, and implementation of development strategies in their communities as well as in the implementation of the activities of the project, which will ensure ownership hence a high degree of sustainability.

4.1.6 Project implementation will utilize the decentralized structure of the public system, which will contribute to strengthening the devolved institutions and lead to good governance. The management of the livestock project was conceptualized within the coherent policy framework of the AAGDS where management facilities and committees are shared between Bank funded projects or with other similar donor projects. This will directly enhance co-ordination of donor funded projects and improve the efficiency of GOG implementation of its investment activities. The approach will also build a sense of ownership by the GOG and contribute to capacity building which will increase the degree of sustainability.

4.1.7 Based on lessons learnt from implementation of the NLP, support to GOG privatisation program will be by increasing the number of community livestock workers (CLW) instead of providing resources for veterinarians in the civil service to set up private practices. The CLW who were established are still operating efficiently and effectively independently. The system has led to increased access to quality animal health care, at low cost to the end users. Increase in the number of CLW under the project will ensure basic animal health care services at community level and save use of GOG resources. Previous donor support to privatisation of clinical services through veterinarians did not achieve the set objectives largely because the existing legislation on veterinary medical practice and privatisation of delivery of animal health services is not conducive for creating an enabling legal environment for para-professional involvement in animal health delivery.

4.1.8 The project is in line with Government objectives of increasing national food production as a contribution to self-sufficiency, reducing foreign exchange expenditure, raising household incomes and adding to food security. Interventions in small ruminants milk production and processing will directly benefit women & children and the poorer strata of society, since these are the activities currently undertaken by the rural poor. Furthermore, the proposal to lay emphasis on poverty reduction is consistent with the ADB Group strategy for the agricultural sector in Ghana as indicated in the Country Strategy Paper.

4.2 Project Area and Beneficiaries

4.2.1 Animal health activities will cover every region in the country whereas other project activities will be concentrated in 25 districts located in 7 selected regions. The criteria for selecting districts included suitability for livestock production, severity of poverty and concentration of the poor. The 25 districts are Bawku East, Frafra and Builsa in the Upper East Region, Sissala, Wa and Jirapa/Lambusi in the Upper West Region, Tamale, Tolon/Kumbu, Savelugu, East Mamprusi, Saboba, Central Conja, Western Gonja and Gushigu in the Northern Region, Kintampo and Atebubu in Brong Ahafo, Ejisu Juaben, Ejura Sekyere and Kumasi in the Ashanti Region, Accra and Dange East in Greater Accra Region, and Juapong, Adidome, Hohoe and Nkwanta in the Volta Region. Smallscale farming system is more widespread and accounts for most of the production in the project area. Communal grazing is practised extensively particularly in the northern regions where there are vast range-lands. The project area has an established tradition of group formation. Most farmers in the project area belong to community groups or co-operatives for crops or other income generating activities, whereas livestock groups are fewer. There are no restrictions to women joining these groups.

4.2.2 In the project area, men and women have highly differentiated economic responsibilities within the family and they do not have joint ownership of property or of financial resources. Women assume about 70% of the care of the small ruminants, pigs and poultry. Project beneficiaries will comprise an estimated 19,000 small-scale livestock farmers and processors of whom 45% will be women. A total of 10,800 of the project livestock

beneficiaries will be owners of small ruminants, animals with which women have the most experience and have traditionally owned. An estimated 1,800 farmers will be cattle and dairy farmers. Women will constitute about 80% of the 175 processors and traders who will benefit from the different activities in the project. A number of service providers will benefit through training. This will include an estimated 250 AEAs and 50 Subject Matter Specialist.

4.3 Strategic Context

4.3.1 The strategy for poverty reduction, stipulated in the Accelerated Agricultural Growth and Development Strategy (AAGDS) and the Interim Poverty Reduction Strategy Paper (IPRSP) lays emphasis on fast economic growth, through agricultural development, to generate increased employment opportunities, and improved access to key services for development. Livestock rearing is the only source of cash income for a large number of smallholder farmers in Ghana. The intervention will therefore increase the returns to this income generating activity by improving farmer access to factors of production. The threat of livestock epidemic could wipe out large flocks of Ghana's livestock and hence a major social safety net for a large portion of the rural poor. The project will create more seasonal jobs which will help in reducing unemployment in the rural areas. Unless there is intervention in disease control these communities are threatened. Therefore, control of disease some of which affect humans directly is important, to avoid proliferation of livestock and human disease.

4.3.2 The project seeks to provide a basis for sustainable livestock development in the country by addressing key livestock sub-sector constraints. The project is consistent with the Bank Group vision and strategy for Ghana, which focuses on food security and poverty reduction.

4.4 Sector Goal and Project Objective

The sector goal is to reduce poverty, improve food security and reduce imports in an environmentally sustainable manner. The specific objective of the project is to increase incomes of smallholder livestock and dairy farmers, processors and traders in the project area.

4.5 Project Description

4.5.1 The project has the following five components A) Development of Animal Production, B) Development of Animal Health, C) Credit provision, D) Capacity Building, and E) Project Management. The following is a detailed description of the components.

A) Development of Animal Production

4.5.2 The project, through breeding stations will purchase goats, sheep, cattle and pigs that have improved reproductive and growth performance and higher milk production in the case of cattle. Semen will be purchased for breeding dairy cows. The purchased animals will be used to breed genetically improved livestock. The new breeds will be performance tested after which a few of the superior stock will be retained at the stations for continued breeding. The remaining good performing animals will be sold to farmers participating in the Open Nucleus Breeding Scheme (ONBS). Poor performing animals will be sold for slaughter. Farmers participating in the ONBS would themselves subsequently supply improved stock to fellow farmers. This system of breeding will speed up the replacement of existing livestock with genetically improved breeds and will expand the knowledge of breeding among livestock farmers. The farmers who will receive improved stock will be trained in appropriate

technology for animal breeding and genetic improvement as well as in animal husbandry and establishment of supplementary feeding units and forage plots. This specialised training will be carried out by Staff at breeding stations and SMS.

4.5.3 Under peri-urban dairy production activities, the breeding stations will provide farmers with AI crossbreed cows for milk production. Under the ONBS, farmers' Sanga cows will be artificially inseminated to breed AI dairy cows and heifers for beef. Staff and technicians will receive extensive training in insemination techniques prior to undertaking these activities.

4.5.4 In order to carry out the above mentioned activities the project has made provision for limited support to rehabilitate farm buildings and offices, and provide necessary office, laboratory and field equipment at breeding stations. In addition, the project will train farmers on range improvement and provide legume seeds and watering facilities for both people and livestock. In order to ensure that the techniques taught to farmers will reach even more farmers, a manual will be produced on the establishment and management of oversown range, under consultant service arrangements. Farmers will be able to borrow resources under the credit facility to purchase seed harvesting and cleaning equipment as well as the initial quantities of seed.

4.5.5 The project will provide funds for the development of water supply points in five regions, distributed as follows: Northern 32 dugout & 16 boreholes, Upper West 6 dugout & 3 boreholes, Upper East 6 dugout & 3 boreholes, Ashanti 3 boreholes, and Greater Accra 3 boreholes. The development of these water points will be based on community initiatives and with their full participation. Once the water points have been established, and farmers have been trained in water management, they will be handed over to community groups for their use, management and maintenance.

B) Development of Animal Health

4.5.6 The project will assist in the control of major diseases including CBPP, brucellosis and PPR. Under this component the Veterinary Department will vaccinate about one million animals per year against these major diseases. In addition, about 3 million birds per year will be vaccinated against New castle & Gumboro diseases. Funds will be made available to purchase vaccines which will be sold to farmers under an increasing cost recovery system over the project implementation period, so that by PY6 farmers will shoulder the full financial value of the vaccine and related services. Funds will be provided to rehabilitate laboratories and four quarantine stations at border points in order to build capacity of surveillance teams at six national laboratories. Motorcycles will be provided to ensure mobility of veterinarians. Furthermore, necessary field equipment will be purchased for epidemiological surveys. The project will also provide laboratory equipment for seromonitoring of rinderpest and other diseases currently carried out by the Emergency Preparedness Unit (EPU).

4.5.7 Under the tsetse control sub-component, provision has been made for motorcycles, office equipment, field and laboratory equipment (traps and screens) to control the population of tsetse flies in areas of the country with high density of tsetse flies. The project will pay for training additional technicians in appropriate tsetse fly control methods. Further, financial assistance will be provided to create awareness amongst farmers of the dangers of Trypanosomosis and fly control measure at village level.

4.5.8 Efforts to adopt several known technologies and disease control measures will be supported by rehabilitating laboratories, providing field equipment, materials and reagents for screening of Tuberculosis and Brucellosis to further develop vaccines against Dermatophilosis and for development, validation and eventual manufacturing of vaccines against NCD. The project will purchase NCD vaccine for year one of project implementation. Thereafter, the revenue generated will be revolved to purchase vaccines for subsequent years.

C) Credit Provision

4.5.9 The project has made provision for a credit facility to enable livestock farmers, processors and traders to access short-term loans (6-12 months) for animal feed, drugs and veterinary services. Short-term loans will also be available to CLW for maintaining continuous supply of animal drugs and equipment for administering medication. Medium term loans will be available (up to 3 years) for construction of storage facilities for animal feed, animal housing, purchase of livestock, purchase of milk processing equipment or marketing activities.

4.5.10 At community level, medium term credit will be available to communities in the project area for activities, to reduce domestic labour such as the purchase of grain grinding mills, means for transporting animals and crop residuals (e.g. small trailers and bicycles with large carrying boxes). At least 30% of credit funds will be allocated to activities for women. The AgDB will manage the credit fund under an on-lending agreement with GOG and acceptable to ADF, similar to those used in ongoing Bank group financed projects. The AgDB will charge prevailing market interest rates to farmers' groups or individual farmers. Credit provision will continue throughout the project period and thereafter on a sustainable basis since the loan repayments will be kept in a revolving fund for the livestock sub-sector.

D) Capacity Building

4.5.11 Training will be provided to producers and processors and to service providers. Under the component, limited support to key institutions involved in animal production and disease control with necessary rehabilitation of essential buildings, as well as provision of equipment and motorcycles. Training activities will include: i) livestock farmers' group formation and training in group management (2,500 farmers); ii) producers, meat and milk processors, and traders; iii) Agricultural Extension Agents (AEA), Subject Matter Specialists (SMS), Managers of technical Directorates & Breeding Stations (50) in financial and administrative management.

4.5.12 Training will be carried out using consultancy services, and where capacity exists MOFA staff will conduct the training programs. Subject Matter Specialists will train 750 AEAs, while AEAs will train 60 CLW in animal health care and production. The CLW will receive, on credit, starter kits of medication and equipment for injecting animals and bicycles to enable them cover large areas. Gender grouping will be structured on the basis of preferences of beneficiaries from participants and to ensure active participation of all members. Training programs will include topics in participatory rapid rural appraisal, animal breeding, animal husbandry & health, range management, improved pasture, seed production & multiplication, dairy production & processing & marketing, water facilities maintenance, tsetse control methods, and gender consciousness raising will all be included. The detailed training program will be prepared by the implementing agency and approved by the bank at the start of the implementation of project activities.

F) Project Management

4.5.13 The project design is within the framework of the Agricultural Sector Services Programme (AgSSIP), the GOG instrument for making Government strategy AAGDS operational. The existing AgSSIP Secretariat within the MOFA will be responsible for the implementation of the project. The National Co-ordinator of AgSSIP will be the co-ordinator of the Project. A Government appointed Project Manager and an Assistant (forming the ADB Desk for the Livestock Development Project) will assist the National Co-ordinator in the day-to-day administrative management of the project.

4.6 Production, Markets and Prices

The marketing channels for project outputs will be those described in section 3.4 above. As indicated in paragraph 3.1.1 there has been increases in domestic production of livestock and livestock products, however, supply remains grossly inadequate to meet the prevailing national demand. In 2000, domestic livestock and dairy production were estimated at 42,000 tones and 27,000 tones, respectively. At full development, the incremental production from the project will be 28,000 tones and 13,650 tones per year (valued at Cedis 19.4 billion, and Cedis 10 billion) for livestock and dairy products respectively. With imports estimated at 15,000 tones and 10,000 tones for livestock and dairy products respectively, there is a large market potential for domestic production of livestock and dairy products in Ghana, thereby increasing smallholder incomes in the project area. The expected output of 28,000 tones of livestock products and 13,650 tones of dairy products per year by Y6 will be absorbed in the domestic market, considering imported products that currently fill part of the supply gap will be more expensive that the local products.

4.7 Environmental Impact

4.7.1 The project has been classified as category II. The project will promote increased animal production through increase in productivity and off-take rather than increase in population of animals, to maintain the existing carrying capacity. Therefore, the environmental implications are expected to be either neutral or improved. Dugouts and bore holes will be constructed under the project to provide water for animals as well as for people. Concentration of animals around watering points tramples and loosens soil particles and may expose these areas to both wind and water soil erosion. This may lead to overgrazing. In order to address this possible situation the project will provide fencing to the new watering points and will plant legumes around the water points.

4.7.2 As indicated in paragraph 4.5.9 the project will utilise traps fitted with screens to control the tsetse fly, which will have neutral effect on the environment. This is contrary to practices in the past when chemicals were used. Control of diseases will be through vaccinations, which will have no negative effects on the environment. The technology proposed for improving animal feed is over-sowing existing communal grazing land with legume plants. Paddock system will be encouraged for grazing animals in order to improve the quality of pasture. This method of grazing will also promote the control of diseases for livestock since it limits animal exposure to open rangeland.

4.7.3 As part of its regular mandate, Environmental Protection Agency (EPA) conducts environmental impact assessments of development projects. The agency's guidelines and check list for livestock interventions are comprehensive and satisfactory. To ensure that the required Bank Group standards for environmental concerns are also met, the Fund will make available

to EPA its environmental policies and guidelines. In addition, the extent of the environmental impact analysis on the project by EPA will be reviewed by the Fund during its regular supervision missions. A summary of the envisaged positive and negative impacts of the project is shown in Annex 3.

4.8 Social Impact and Poverty Reduction

4.8.1 Through addressing the full cycle of livestock farming – production, transformation and marketing – project impact on poverty reduction will be enhanced. Meat and dairy farmers, processors and traders, who are largely women, as well as livestock farmers will receive training and access to micro-credit. The increased professionalism in the livestock sub-sector will result in improved food security and increased income for poor men and women in the most impoverished regions of the country.

4.8.2 The measures put into place to ensure an equitable access and control of the project resources, will ensure that the most marginal and poorer groups are reached. At least 10,000 of the project beneficiaries will be owners of small ruminants. The use of a participatory and gender sensitive approach in project implementation activities will increase enable effective identification and response to the needs and priorities of men and women.

4.9 Project Costs

4.9.1 The total cost of the project, exclusive of custom duties and taxes, including physical and price contingencies, is estimated at Cedis 198,771.75 million equivalent to UA22.07 million. The foreign exchange portion is estimated at UA18.31 million representing 83% of the total project cost. The local costs of the project are estimated at UA3.76 million, which is equivalent to 17% of the total cost. Price and physical contingencies make up 7.4% of the total cost of the project. A summary of costs by component and by category of expenditure is provided in tables 4.1 and 4.2 below.

Table 4.1: Summary Cost Estimates by Component

	(Cedis Million)			(UA '000)			% For.
	Local	Foreign	Total	Local	Foreign	Total	Exch.
1. ANIMAL PRODUCTION	19,638.61	46,096.45	65,735.07	2,180.94	5,119.19	7,300.13	70
2. ANIMAL HEALTH	3,474.75	17,206.80	20,681.55	385.88	1,910.88	2,296.77	83
3. CREDIT	-	37,322.00	37,322.00	-	4,144.75	4,144.75	100
4. CAPACITY BUILDING	2,505.99	40,056.95	42,562.94	278.30	4,448.48	4,726.78	94
5. PROJECT MANAGEMENT	5,060.45	12,622.32	17,682.78	561.98	1,401.76	1,963.74	71
Total BASELINE COSTS	30,679.80	153,304.53	183,984.33	3,407.11	17,025.06	20,432.17	83
Physical Contingencies	607.08	6,876.40	7,483.48	67.42	763.65	831.07	92
Price Contingencies	2,595.61	4,708.33	7,303.94	288.25	522.88	811.13	64
Total PROJECT COSTS	33,882.49	164,889.26	198,771.75	3,762.78	18,311.59	22,074.37	83

4.9.2 Project cost estimates are based on the prevailing prices in Ghana in May 2001. Unit rates for locally procured goods and services and for civil works are also based on prevailing rates in May 2001. Similarly, unit rates for civil works are based on ongoing similar works in the country in May 2001. The exchange rates used on imported goods and services were those of May 2001. A rate of 10% for physical contingencies was applied to the cost of civil works and 5% for goods to be purchased under the project. Changes in the rate of inflation are assumed to be 2.5% and 8% for imported goods and locally purchased goods, respectively.

4.10 Sources of Finance and Expenditure Schedule

4.10.1 The project will be financed by the African Development Fund (ADF) and the Government of Ghana (GOG). The total ADF financing will be UA19.58 million, representing 88.7% of the total project costs. The ADF resources will finance 99% of the foreign exchange costs and local costs amounting to UA1.41 million (37.5% of total local costs) associated with operations and maintenance, and training of livestock small-scale operators and Government staff. The Government contribution is estimated at UA2.45 million, equivalent to 11.1% of the total project cost. The Government contribution will cover salaries of staff to be involved in the project implementation, and office utilities for the project management as well as FWD vehicles. Beneficiaries will contribute an equivalent of UA0.42 million, which will mainly comprise of operation and maintenance of bore holes. The financing plan of the project is shown in Table 4.3 below.

Table 4.2: Summary of Project Costs by Category of Expenditure

	(Cedis Million)			(UA '000)			% For.
	Local	Foreign	Total	Local	Foreign	Total	Exch.
I. Investment Costs							
A. CIVIL WORKS	2,482.11	23,570.05	26,052.16	275.65	2,617.54	2,893.19	90
B. VEHICLES	-	8,958.51	8,958.51	-	994.88	994.88	100
C. EQUIPMENT	815.84	24,927.50	25,743.34	90.60	2,768.30	2,858.90	97
D. LIVESTOCK PURCHASE	-	2,199.30	2,199.30	-	244.24	244.24	100
E. CONTRACT SERVICES	110.00	6,550.00	6,660.00	12.22	727.40	739.62	98
F. TRAINING & W/SHOPS	4,028.02	44,865.40	48,893.42	447.33	4,982.48	5,429.80	92
G. CREDIT	-	37,322.00	37,322.00	-	4,144.75	4,144.75	100
Total Investment Costs	7,435.98	148,392.76	155,828.73	825.79	16,479.59	17,305.38	95
II. Recurrent Costs							
A. OPERATION & MAINTENANCE	814.21	715.97	1,530.18	90.42	79.51	169.93	139
B. PERSONNEL SALARIES	16,505.72	-	16,505.72	1,833.02	-	1,833.02	-
E. OTHER OPERATING COSTS	3,490.00	-	3,490.00	387.58	-	387.58	-
F. TRAVEL & ALLOWANCES	2,433.90	4,195.80	6,629.70	270.29	465.96	736.25	63
Total Recurrent Costs	23,243.83	4,911.77	28,155.60	2,581.32	545.47	3,126.79	17
Total BASELINE COSTS	30,679.80	153,304.53	183,984.33	3,407.11	17,025.06	20,432.17	83
Physical Contingencies	607.08	6,876.40	7,483.48	67.42	763.65	831.07	92
Price Contingencies	2,595.61	4,708.33	7,303.94	288.25	522.88	811.13	64
Total PROJECT COSTS	33,882.49	164,889.26	198,771.75	3,762.78	18,311.59	22,074.37	83

Table 4.3 Sources of Finance (UA '000,000)

Source	For. Exchange	Local Costs	Total Costs	% of T. Cost
ADF	18.17	1.41	19.58	88.7
Government	0.14	2.31	2.45	11.1
Beneficiaries	0.00	0.04	0.04	0.2
TOTAL	18.31	3.76	22.07	100

4.10.2 *Justification for ADF for financing of Local Costs.* Ghana is making substantial efforts towards achieving sustainable development in general and towards mobilisation of external and internal resources to finance its development activities. Since 1983 GOG has undertaken comprehensive and sustained economic reforms to stabilise and liberalise the economy

4.10.3 The project local cost content, estimated at UA3.76 million, is 17% of the total cost. The funds will be used to fund the local cost of rehabilitating structures in breeding stations, construction of dugouts and water points, and capacity building. The financial system has recently come under strong pressure from sharp declines in the world prices of cocoa and gold, Ghana's principal foreign exchange earners, and simultaneously, rising prices of petroleum products. The negative impact of these developments has been exacerbated by substantial shortfalls in revenue collections, leading to increases in fiscal deficit. As a result, it would not be prudent for the Government to continue borrowing from the domestic market due to the existing high domestic debt and the crowding out effect that would further derail its ongoing reform programme. It is therefore necessary that the ADF resources be utilised to meet part of the local costs.

4.10.4 The Government has taken several measures to improve fiscal performance. These include the creation of a Central Revenue Board (to improve tax administration), implementation of the Medium Term Expenditure Framework that has streamlined expenditure; adoption of revenue collection measures that include the tightening of procedures relating to revenue collection, strengthening the audit program and reintroduction of the Value Added Tax. It is expected that over time these measures will improve GOG finances, enabling it to eventually fund the local costs of the project activities from its own resources. The ADF will finance part of the local currency costs, amounting to 6% of the total project cost. The amount of ADF financing of local cost will decrease over the project implementation period.

5. PROJECT IMPLEMENTATION

5.1 Executing Agency

The Ministry of Food and Agriculture (MOFA) will be the executing agency. The project will be implemented over a period of six years. The overall implementation of project activities will be co-ordinated by AgSSIP. The execution of activities will be the responsibility of the project manager and the Directorates of Animal Production and Veterinary Services. Each Regional Agriculture Director will designate two Regional Development Officers one in Animal Production and one Veterinary Specialist in consultation with the National technical Directorates of Animal Production and Veterinary Services to implement and co-ordinate the project in the respective RADU. The assigned Regional Development Officers will liase with the District Development Officers who will be assigned by the District Director in consultation with the Regional Director, one Animal Production Specialist and one Veterinary Specialist, to implement specific activities of the project at the village level as well as co-ordinate implementation of activities by a wide range of consultants, NGOs and Institutions.

5.2 Institutional Arrangements

5.2.1 *Project Steering Committee (PSC):* The PSC will provide guidance for the smooth implementation of the project. It will ensure liaison with beneficiaries and relevant institutions. It will among others approve the relevant annual work-plans and budget. It will convene at least four times every year. The AgSSIP Co-ordinator, assisted by the Project Manager, will provide secretariat services to the steering committee for the Livestock Development Project.

The project will utilise the services of the existing National Programme Advisory Committee (NPAC) as its steering committee to provide policy guidance for the project and overall monitoring of its implementation. The NPAC is chaired by the Minister of Food and Agriculture or his designee and includes representatives of: (I) the private sector (farmers, input traders, commodity traders, processors and exporters); (ii) NGOs; women's organisations; and (iv) Ministries of (a) local Government and Rural Development; (b) Science, Environment and Technology; (c) Trade and Industry; (d) Roads and Transport; and (e) Finance. Additional members representing stakeholders in the livestock industry will be nominated to the NPAC. The Committee will also include representatives from the following Directorates: Animal Production, Veterinary Services, Women in Agriculture Development, Planning, Monitoring and Evaluation, Regions covered by the project, representative of Livestock Associations (2 persons), and Livestock Farmers (2 persons). At the district level, beneficiaries and stakeholders including breeders and farmers would be adhoc members of the District Development Committees.

5.2.2 *Implementation Arrangements*. It is to be noted that the activities of the project are part of the normal day to day activities of the District Agricultural Development Units. The proposed project will only provide them with resources to carry out these activities more efficiently and effectively. In this regard, existing District Agricultural Units will carry out the implementation of project activities at the District level.

5.2.3 The actual implementation of the activities of the project will be carried out by district agricultural units in close collaboration with the Project Manager, by the two technical directorates of the Livestock Sub-Sector (Animal Production and Veterinary Services) and the institutions that form the decentralized structure of the agricultural sector. In each of the participating Districts, the District Director of Agriculture assisted by Subject Matter Specialists and Agricultural Extension Agents will implement the project at field level. The two Directorates at regional and headquarters level will provide the technical backstopping to the Districts as and when required. Built in triggers (benchmarks) will be identified each year of project implementation to review the effectiveness of the implementation structure, and where necessary adjustments will be made.

5.2.4 The project manager will collaborate with the Director of APD and VSD at the National Level, and also with the Regional and District Directors of Agriculture in finalising the implementation programme (Annual Work-Plans & Budget) and the implementation of the livestock production and animal health care activities. The DADU will, after consultation with the stakeholders, provide the input, which the project manager will use to draw up the Annual Work Plan of the District. In the same vein, the project manager will, using the participatory approach, collaborate with GIDA and AESD in making the necessary arrangements for constructing the dugouts and making the boreholes. Animal Breeding and improvement of livestock feed will be the responsibility of the National Animal Production Directorate. Control of major diseases, adoption of appropriate technologies for disease control, and tsetse control will be the responsibility of the National Veterinary Services Directorate. The group formation and other activities will be contracted out to local NGOs with experience and capacity for mobilising, animating and training farming and entrepreneurial groups. The Ministry of Health will implementation Guinea worm, and Malaria prevention campaigns, while the HIV/AIDS Commission will implement the campaign on HIV/AIDS prevention. Beneficiaries will operate and maintain water resource facilities.

5.2.5 The GOG shall on-lend the credit funds to the AgDB on the basis of a subsidiary loan agreement between the two parties, on terms and conditions acceptable to ADF. The on lending rates from GOG to AgDB have generally varied from around 4% to 11%. Details of the administrative arrangements between the GOG and the AgDB will be included in the on-lending agreement, which shall have been reviewed and approved by ADF prior to signature.

5.3 Supervision and Implementation Schedule

5.3.1 At the start of the project, a program and implementation schedule of the project activities shall be submitted to ADF. Project activities will start in February 2002. During the first year, emphasis will be on preparing bidding documents for civil works and goods, as well as making the necessary preparations for group formation and training. During the first year also, the on-lending agreement between GOG and AgDB will be finalised, control of major diseases and tsetse control as will as selection of participating breeders will be carried out. Re-stocking of the six breeding stations and the rehabilitation of animal breeding station will commence in the first year and will continue throughout the project Year 2. Dairy improvement, communal grazing, credit and capacity building will start from year 1 and continue through to year 6. Details of the implementation schedule are given in Annex 4.

5.3.2 Before the start of implementation, eight workshops will be held, to launch the project one at national level and seven for the participating regions. The project launches will include a broad spectrum of the population, including government ministries, civil society and beneficiaries. This will permit the stakeholders and beneficiaries to reinforce and appropriate the project activities and implementation strategy and to acquire the tools necessary for it's effective implementation.

Table 5.1: Expenditure Schedule by Component (UA '000)
Totals Including Contingencies

	2002	2003	2004	2005	2006	2007	Total
1. ANIMAL PRODUCTION	2,957.51	1,571.89	1,340.88	1,071.02	615.62	512.62	8,069.54
2. ANIMAL HEALTH	1,125.22	248.87	259.77	333.95	318.07	291.37	2,577.24
3. CREDIT	451.10	819.58	1,021.70	819.58	415.34	617.46	4,144.75
4. CAPACITY BUILDING	2,654.19	1,493.98	894.06	40.84	23.06	24.53	5,130.66
5. PROJECT MANAGEMENT	524.27	360.33	359.94	399.60	377.32	130.73	2,152.18
Total PROJECT COSTS	7,712.29	4,494.65	3,876.34	2,664.98	1,749.41	1,576.70	22,074.37

Table 5.2: Expenditure Schedule by Source of Finance (UA '000)
Totals Including Contingencies

Source of Finance	2002	2003	2004	2005	2006	2007	Total
Government	498.91	358.58	374.17	397.14	406.29	416.33	2,451.42
Beneficiaries	0.00	2.94	5.57	8.56	11.99	13.32	42.39
ADF	7,213.38	4,133.12	3,496.60	2,259.28	1,331.13	1,147.05	19,580.56
Total Financing	7,712.29	4,494.65	3,876.34	2,664.98	1,749.41	1,576.70	22,074.37

5.4 Procurement Arrangements

5.4.1 All procurement of goods, works and services financed by the ADF under the project will be in accordance with the Bank's *Rules of Procedure for Procurement of Goods and Works* or, as appropriate, *Rules of Procedure for the Use of Consultants*.

5.4.2 ***Civil Works:*** Procurement of civil works comprises of rehabilitation of farm, laboratory, quarantine and office buildings as well as construction of bore holes and dugouts. The works will be spread over the 25 districts that will be covered under the project, under small contract sizes, not exceeding UA100,000, hence are unlikely to attract bids from outside the country. Therefore, procurement of civil works of total value of UA3.32million, will be carried out under National Competitive Bidding (NCB) procedures.

5.4.3 ***Goods:*** Procurement of trucks, motorbikes, and bicycles amounting to UA0.94 million will be under International Competitive Bidding procedures. The procurement of various types of equipment (for office, laboratory, field) and farm implements valued at UA3.1million, will also be under International Competitive Bidding procedures. Purchase of breeding animals (cattle, sheep, goats and pigs) for six breeding stations, and estimated at UA0.26 million, will be by National Shopping, since individual procurement contracts will be small with each contract not exceeding UA100,000. Procurement of water pipes and pumps will be by National Shopping since the amount is small and the country has many agents of qualified foreign suppliers to ensure competitive prices.

5.4.4 ***Consultancy Services and Training***: Procurement of consulting services valued at UA1.7million, will be undertaken on the basis of shortlists of qualified consultants, in accordance with the Bank's *"Rules of Procedure for the Use of Consultants"*. The selection will be based on technical quality with price consideration. Services required include group formation and training in group management (UA1.2million), training of farmers (UA0.1million), Community Livestock Workers (UA0.1million), Agricultural Extension Workers (UA0.2million), Subject Matter Specialists and other staff (UA0.05million). Procurement of training facilities including perdiem and transportation for all training participants (UA2.8million) will be organised by the executing agency, and will be managed through a project special account (revolving fund).

5.4.5 Contract services for annual auditing (UA0.23 million); a mid-term review (UA0.05 million); and adhoc studies and reviews (0.16 million) will also be procured on the basis of shortlists, with the selection procedure combining technical quality with price consideration. The organising of district workshops for project implementation will be organised by the GOG every six months for each of the 25 districts and the resources for the workshop, valued at UA0.13million, will be managed through the Special Account. The procurement of goods and services for activities under HIV/AIDS initiative will be co-ordinated by the Gender Unit, in the Youth and Health in the Directorate of Agriculture Extension Services (DAES), and they valued at UA0.11 million. UA 0.11 million has been budgeted to support the ongoing programme for prevention of guinea worms and malaria. Due to the specialised nature of the services, these activities will be co-ordinated by the Ministry of Health, the ministry responsible for these activities

5.4.6 ***Credit***: The GOG will on-lend a credit fund of UA4.1million to AgDB, under conditions acceptable to the ADF. The AgDB will use its existing disbursement guidelines to provide credit to livestock breeders, processors and traders. Goods, services and civil works that will be financed under the credit component will include but not limited to improved breed

animals, animal feed, veterinary drugs, milk processing equipment, and construction of animal housing structures. Funds will be lent to the beneficiaries, who will purchase goods, services and works in accordance with established commercial practices of the Agricultural Development Bank and acceptable to the Bank Group.

5.4.7 ***National Procedures and Regulation:*** Ghana's national procurement laws and regulations have been reviewed and determined to be acceptable.

5.4.8 ***The Executing Agency***: MOFA will be responsible for the procurement of goods, works, consulting, and training services. MOFA has extensive experience implementing donor-financed projects. The Implementing Agency is therefore familiar with ADF Rules of Procedure for the Procurement of Goods, Works and Services. The resources, capacity, expenses and experience of MOFA are adequate to carry out the procurements.

Table 5.3 below gives a summary of the procurement arrangements under the proposed project.

Table 5.3: Summary of Procurement Arrangements (UA '000)

	<----------Procurement Method---------->					
CATEGORIES	**ICB**	**NCB**	**Other**	**Short List**	**N.B.F.**	**Total**
A. CIVIL WORKS	**-**	3,327.96	-	-	-	3,327.96
	-	(3,327.96)	-	-	-	(3,327.96)
B. GOODS						
1. Trucks, m/cycles, b/cycle	942.34	-	-	-	-	942.34
	(942.34)	-	-	-	-	(942.34)
2. Veh-4WD D/Cabin Pick-ups	-	-	-	-	125.98	125.98
3. Equipment	3,163.70	-	9.53	-	-	3,173.23
	(3,163.70)	-	(9.53)	-	-	(3,173.23)
4. Livestock Purchase	-	-	262.41	-	-	262.41
			(262.41)			(262.41)
Subtotals	4,106.04	-	271.94	-	125.98	4,503.97
	(4,106.04)	-	(271.94)	-	-	(4,377.98)
C. CREDIT	-	-	4,144.75	-	-	4,144.75
			(4,144.75)			(4,144.75)
D. SERVICE CONTRACTS	-	-	129.87	440.78	-	570.65
			(129.87)	(430.23)		(560.10)
E. CONSULTING SERVICES	-	-	4,249.90	1,734.81	-	5,984.71
(trg., seminars & w/shops)	-	-	(4,249.90)	(1,734.81)	-	(5,984.71)
F. OTHER COSTS						
1. HIV/AIDS campaign program	-	-	111.05	-	-	111.05
			(111.05)			(111.05)
2. Livestock Related Diseases	-	-	111.05	-	-	111.05
			(111.05)			(111.05)
Subtotals	**-**	**-**	222.11	-	-	222.11
	-	**-**	(222.11)	-	-	(222.11)
G. MISCELLANEOUS						
1. O&M (veh., equip., & c/works)	-	-	82.01	-	137.14	219.15
	-	-	(82.01)	-	-	(82.01)
2. Salaries and Wages	-	-	-	-	1,719.40	1,719.40
3. Travel and Allowances	-	-	880.94	-	-	880.94
	-	-	(880.94)	-	-	(880.94)
4. Other Operating Costs	-	-	-	-	500.73	500.73
Subtotals	**-**	-	962.94	-	2,357.28	3,320.22
	-	-	(962.94)	-	-	(962.94)
PROJECT TOTALS	4,106.04	3,327.96	9,981.52	2,175.59	2,483.26	22,074.37
	(4,106.04)	(3,327.96)	(9,981.52)	(2,165.03)	-	(19,580.56)

5.4.9 ***General Procurement Notice***: The text of a General Procurement Notice (GPN) will be prepared by the Government, and reviewed during negotiations. The GPN will be issued for publication in the United Nations Development Business, after approval of the project loan proposal by the ADF Board of Directors.

5.4.10 ***Review Procedures*****:** The following documents are subject to review and approval by ADF before promulgation: (a) Specific Procurement Notice; (b) Tender Documents and Requests for proposal for Consultants; (c) Tender Evaluation Reports or Reports on Evaluation of Consultants' Proposals, including recommendations for contract award; (d) Draft contracts, if these have been amended from the drafts included in the tender documents.

5.5 Disbursement Arrangements

Project funds will be disbursed according to the expenditure schedule by component and by source of finance shown in tables 5.2 and 5.3 respectively. The Government will open two separate accounts in the name of the project for the funds provided by ADF and the Government. The ADF funds will be disbursed according to annual work plans and Budget, which will be approved by the Government and the Fund. Initial request for disbursement of the special account will be submitted to the Bank for approval and the amount shall be in accordance with relevant Bank Group Rules of Procedure. The disbursement of subsequent funds will be subject to justification of the utilisation of the preceding funds. Other disbursements under the project will be made in accordance with the procedures in force. The contribution of the Government to the project costs will be deposited in a special account on a quarterly basis as set out in table 5.3.

5.6 Monitoring and Evaluation

5.6.1 Monitoring and evaluation (M&E) will be carried out in a participatory and gender sensitive manner. The project M&E unit will set up verifiable indicators for monitoring the differential impact that the project has on male and female beneficiaries and to ensure that the benefits reach the target group. The project monitoring and evaluation will be the responsibility of the Planning and Information Unit (LPIU) of PPMED in MOFA. The Ministry of Finance will periodically monitor the overall implementation of the project. At the District level, District Development Committees which include stakeholders will constantly monitor implementation and impact of the project. The LPIU will be required to provide quarterly reports prior to each of the Project Steering Committee meetings. A mid-term review of the project's performance will be undertaken in the third year, which will form the basis for modifying the project's approach, if, found necessary.

5.6.2 Project management will prepare quarterly progress reports, (according to the Bank Group format) and annual progress reports indicating physical progress, procurement activities, expenditures, and evaluating the representation of men and women as beneficiaries according to the requirements of ADF. Quarterly reports should reach ADF within two months of the end of the reporting period, while the annual report should be submitted before the end of March of the following year. A project completion report will be submitted by MOFA within six months of the end of project implementation.

5.7 Financial Reporting and Auditing

The Project will keep financial records in accordance with sound international accounting practices and will ensure that an independent auditor acceptable to the GOG and ADF audits all project accounts annually. The corresponding audit reports will be regularly submitted to ADF for review. The AgSSIP secretariat along with the project manager will be responsible for timely submission of annual financial statements. A separate audit will be undertaken on the use and application of the credit funds on lent to AgDB. Fully audited certified financial statements for the preceding financial year shall be submitted to ADF not later than six months after the closing of the financial year.

5.8 Aid Co-ordination

5.8.1 Co-ordination of aid in Ghana is currently being effected through the Comprehensive Development Framework. Under this framework, inter-agency co-ordination is reinforced through sector co-ordinating groups and Mini-Consultative Groups meetings organised on a quarterly basis. MOFA is responsible for co-ordinating donor assistance in the Agricultural sector at the national level. Donors support government efforts by ensuring that projects/programmes financed fit into this framework. The Livestock Development Project is in line with the areas identified under the global (AgSSIP) programme.

5.8.2 During appraisal, the project was discussed with representatives of multilateral and bilateral aid agencies in Ghana, including the European Union (EU), World Bank, Japan International Co-operation Agency (JICA), Dutch Embassy, Agence Française de Développement (AFD), the Canadian International Development Agency (CIDA), BADEA and FAO, GTZ, DFID, USAID, UNDP and WFP. Representatives of donor agencies expressed their support of the proposed intervention as it is consistent with the areas identified under the AgSSIP programme. BADEA which has just completed a study on commercial dairy production will fund a project to promote commercial dairy production in 2003. This potential intervention will complement the activities of the present project, since it will focus on commercial dairy farmers. DFID had undertaken a study on the role of livestock in rural livelihoods and the outcome of the study provided valuable information on the characteristics of the target groups which was used the study results during the project design. The study results will also be useful in the preparation of detailed implementation plans.

6. PROJECT SUSTAINABILITY AND RISKS

6.1 Recurrent Costs

6.1.1 The major cost items under the ADF financing include operating costs for the project staff and office, operation and maintenance of vehicles and field allowances. The cost items to be borne by the Government comprise salaries, office utilities, UA2.43million. The operations and maintenance of the water points and management infrastructure developed by the project annually would be the responsibility of the beneficiaries. Salaries of staff who will participate in the implementation of the project, estimated at UA0.28million per year, are already in the Government budget.

6.1.2 At the end of the project implementation, the GOG will continue to meet the recurrent costs associated with the operation and maintenance of vehicles and equipment used by the project, since these are part of the normal GOG budget for operating breeding station, laboratories, and the relevant directorates. The running and maintenance costs associated with

motorbikes will be the responsibility of the Agricultural Extension Agents under MOFA's current arrangements, which stipulate that staff should gradually take ownership through monthly deductions from salaries. Recurrent costs related to animal production in breeding stations will be borne by the breeding stations through the generated revenue from services provided to livestock breeders and processors. In order to ensure continued funding to the ONS, the Government will activate the existing revolving fund system for breeding stations.

6.2 Sustainability

6.2.1 The project is designed on the basis of beneficiary participation through demand of the services that will be made available under the project. This demand-driven participatory approach will ensure beneficiary willingness to undertake the activities even after the end of project implementation. All project activities are based on simple low cost technology that are already in use by some livestock producers, hence the practices have been tried and accepted by smallholders. Given the familiarity of the technologies and practices that will be promoted under the project, the proposed training for smallholders under the project will enhance the beneficiaries' knowledge and skills, which will in turn, increase the degree of adoption during and after project implementation.

6.2.2 Subject Matter Specialists and AEAs will be trained to upgrade skills in their respective technical fields. These technical advisers will assist livestock breeders to develop their own appropriate work plans. Breeders will continue to work together with and AEA to implement work plans at field level. The participatory methods are expected to build a strong sense of ownership in project activities among the beneficiaries and contribute towards the sustainability of project activities.

6.2.3 Training investment in all aspects of the production process is envisaged to enable operators to continue to operate for the most part, independently and sustainably with a minimum of public sector support, after project implementation. The strategy to reactivate the revolving fund that was established with each of the breeding stations will provide the breeding programme with requisite funds to operate the stations without necessarily relying on Government transfers of recurrent funds. Funds revolved are those generated from sale of animals and provision of services to the farming community. Under the credit component the GOG will establish a revolving fund with the AgDB as resources are recovered under the credit facility. This will ensure that farmers are able to access credit even after the project implementation has ended.

6.3 Critical Risks and Mitigating Measures

6.3.1 The overall success of the project depends on the assumptions that the Government on-going macro-economic policies, particularly in the agricultural sector will remain favourable for farmers to intensify livestock production profitably, so that more farmers will adopt improved breeding and animal husbandry practices. It is also assumed that the Government will continue to financially support the necessary activities to keep Livestock diseases that fall under public sector responsibility, under check.

6.3.2 Considering that total eradication of major diseases would require large levels of investments, there is still a risk of a major disease outbreak before the disease control activities are completed that could affect the realisation of benefits from the project. This risk will be minimised by putting in place disease control measures during the early part of project implementation. It is assumed that there will not be major outbreaks of disease during the first two years of implementation.

7. PROJECT BENEFITS

7.1 Financial Analysis

7.1.1 Nine farm models were developed, representing typical farming productive investment in livestock practised in Ghana. The farm models assume no land expansion at the household level. A credit facility will be made available to cover a significant proportion of the cost of breeding or processing. Prices used to calculate outputs and inputs were obtained from MOFA during project appraisal in May 2000, and are expressed in constant May 2001 Cedis.

7.1.2 Existing farm management practices in the project area are poor, hence there is high potential for improvements. It Assuming livestock farmers adopt the recommended animal husbandry practices, increased level of productivity, reduced mortality rate and improved feed conversion ratio will result in incremental returns to an estimated 19,000 farm families, of 5%, (10,800) goat and sheep breeders; 2% (1,800) cattle and dairy farmers; 17% (6,200) pig farmers; and 175 milk processors in the 25 districts.

7.1.3 At full development of the project, small ruminant producers with 10 animals will realise incremental annual income of Cedis 1.2million (78% increase). For the Ashanti Black pig production, with 5 sows, producers incremental income will be Cedis2.5million/year, which is equivalent to 32%. Incremental returns from small scale improved marketing and processing are estimated at Cedis 2.2million, equivalent to 54% increase in income. Peri-urban dairy farming with 5 crossbred cows will realise positive returns of Cedis 5million per year. All these models will be able to finance their operations for at least 50% of their investment costs. Detailed description of farm models and tables for estimating financial returns to investment are provided in Volume II of the report.

7.1.4 The aggregate financial benefits from livestock production and processing when computed against the investment costs of the animal production component for the proposed project activities generate a FIRR of 51%. The benefits to be generated by the animal health component have not been included in the financial analysis, as they would not necessarily be converted into financial flows. A summary of the aggregate cash flow of the recommended livestock production and processing activities is included in Volume II of the report.

7.2 Economic Analysis

7.2.1 The economic benefits of the project are derived from both animal production and veterinary service provision. From animal production, benefits will be due to increased productivity emanating from availability of improved animal breeds and adoption of improved methods of animal husbandry by the farmers and improved feed conversion ratio. Benefits from investments in veterinary service activities are quantified as the value of livestock saved due to reduced mortality rate, as a result of effective disease control. The economic benefits arising from the proposed project are compared between the “with” and “without” project situation to measure incremental benefits. The analysis generates an EIRR of 35%, at the opportunity cost

of capital of 12%. A summary of the Economic returns to the project are given in Annex 8. Assumptions underlying the economic analysis of the project are:

(a) The net benefit stream has been estimated over a period of 30 years.

(b) Economic prices have been derived from market prices, using a conversion factor of 0.9. Considering the outputs from the project activities are mainly live animals, and that there is a lot trading in live animals with neighbouring countries, import parity prices for the various types of livestock, from Burkina Faso were applied.

(c) Financial costs of the project have been adjusted to economic costs by excluding taxes, duties and price contingencies.

7.2.2 The project will help increase in livestock production and will improve the nutrition, income and standard of living of at least 19,000 households, through improved services in animal disease control and treatment and the diffusion of improved technologies in livestock and forage and pasture production, as well as through provision of credit facilities. In addition, the project will create 9,500 seasonal jobs. The incremental production of livestock and dairy products is estimated at 28,000 tones and 13,650 tones per year beginning in year six. With this level of production, the project will contribute to the saving of UA4.2million annually.

7.3 Cross Cutting Issues

7.3.1 The Bank has recently put into place a new classification system that indicates the share of resources that are specifically earmarked for cross cutting issues. When an issue is given a classification of 2, it is a major theme or thrust of the project. Only one cross cutting issue can be given the grade of 2. When an issue is given a rating of 1, it is addressed in a major way by the project.

7.3.2 The principal impact of the Livestock Development Project will be improved food security and income of small holder farmers, processors and traders. Both the target area and the target group assure that the project will disproportionately benefit the poor. The target area of this project includes the Northern region, where 70% of the population are poor, and the Upper West and Upper East regions, where 90% of the population are poor. And throughout Ghana, 58% of those identified as poor are from the agriculture sector. Access to credit will permit resource poor farmers, processors and traders to buy livestock. Improved extension services in animal health and production will not only reduce the morbidity rate of animals but also improve their growth rate and enhance their reproduction. The impact of improved extension services will be enhanced by access to improved animal feed. For all of these reasons, the CCI classification given to poverty reduction in this project is 2.

7.3.3 The CCI classification of this project for gender, economic growth and private sector development is 1. Mitigating measures have been put into place to prevent increased workload on women and children. It has been invited that 3% of the activities be reserved for women and a number of safeguards and activities have been put into place to ensure that both men and women benefit and to prevent an increase in children’s workload.

These include: (i) access to credit to purchase livestock or labour saving devises; (ii) provision of bore-holes; (iii) training MOFA staff in gender and participatory development; (iv) recruitment of women as CLW when the AEA is a man; (v) setting up regional gender focal points; (vi) carrying out participatory project monitoring and evaluation; and (vi) the inclusion of WIAD and the Ministry of Women on the project Steering Committee.

7.3.4 This project contributes to economic growth through the increased output in the livestock sector, thereby redressing macro-economic imbalances resulting from the present low level of production of the sector. Livestock production, processing and marketing is largely carried out for subsistence rather then as a profit-making venture. This project will provide the conditions necessary to render farmers more entrepreneurial, expand the role of the livestock sector in economic growth and generate increased economic opportunities for the sector. To a lesser degree, the project also contributes to good governance, through the implication of NGOs in project implementation, training given to farmers in group formation and the emphasis placed on participatory development. The thematic area of regional integration and co-operation is not addressed in this project.

7.4 Sensitivity Analysis

Sensitivity of Economic Benefits: The economic sensitivity analysis shows that benefits are robust to changes in falling benefits and rise in investment costs. This could be attributed to the large amounts of benefits that would be generated as a result of vaccinations of livestock. Benefits have to decrease by 20% for the EIRR to fall to 25%. The economic rate of return exhibits sensitivity to combined decrease in benefits and increase in costs of 10% each. The sensitivity tests carried out show the EIRR higher than the opportunity cost of capital of 12%

At current benefits	35%
20% decrease in benefits	25%
20% increase in costs	26%
2 years delay in benefits	20%
10% decrease in benefits and 10% increase in costs	25%

8. CONCLUSION AND RECOMMENDATIONS

8.1 Conclusions

8.1.1 The Livestock Development project will assist the GOG in the implementation of its livestock development policies and strategies as stipulated in the country's vision 2020 and the underlying AAGDS. The project will increase the total production of livestock and livestock products by 28,000 tones of livestock products and 13,650 tones of dairy products per year starting in year six of project implementation valued at a total of UA4.3 million. The project will also contribute to generating stable employment. The cross breeding programme will improve livestock productivity, including increase in milk production from 1.5 litres to 10 litres per cow per day and an average of 25% increase in the cattle, goats and sheep selling weight over the same period. All proposed activities will be carried out in an environmentally sustainable manner.

8.1.2 Considering smallscale farmers face diseconomies of scale in accessing inputs, credit and markets for their output, the group mobilisation and training will address this constraint and will improve their participation in the economic development of their communities. The project will use the decentralised structure of the public system, which will contribute to

strengthening the devolved institutions and help foster good governance. The envisaged financial returns to the activities will, as indicated in section 7.1 contribute to household incomes which will in turn contribute to reduction of poverty in rural communities as well as selected peri-urban areas.

8.1.3 The project as designed is technically feasible, socially desirable, financially and economically viable and environmentally sustainable. Project activities will be implemented on a beneficiary demand basis, to ensure beneficiary participation and adoption of the recommended practices. The project is consistent with the Bank Group Vision statement as well as the Bank strategy for Ghana. It is also consistent with the goals of the Ghana Government to increase incomes of the poor livestock farmers and traders and also to substantially reduce imports of animal products by promoting domestic production. The project supports Government's efforts to increase food security and to enhance rural incomes.

8.2 Recommendations and Conditions for Loan Approval

It is recommended that a loan of UA19.58 million be granted to the GOG for the purpose of implementing the project as described in this report subject to the following conditions:

A. ***Conditions Precedent to Entry into Force***

The entry into force of the Loan Agreement shall be subject to the fulfilment by the Borrower of the provisions of sections 5.01 of the General Conditions of the Fund (ADF) applicable to Loan Agreements and Guarantee Agreements.

B. ***Conditions Prior to First Disbursement***

The obligations of the Fund to make the first disbursement of the loan shall be conditional upon the entry into force of the agreement and the fulfilment by the Borrower of the following conditions. Prior to first disbursement the Borrower shall provide evidence satisfactory to the Fund:

(i) that new members comprising stakeholders of the project, including livestock producers (2 persons), dairy producers (1 person) and processors (1 person) have been appointed to the National Program Advisory Committee (NPAC), and to the District Agriculture Development Committees (DADC), (para 5.2.1).

(ii) that the NPAC and DADC have been designated to oversee activities of the Livestock Development Project, to provide guidance in implementation of project activities at national and district levels, respectively, (para 5.2.1).

(iii) that a Project Manager whose qualifications and experiences shall be subject to prior approval of ADF, to work exclusively on the management and administration of the project, has been appointed. (para 5.1.1 & 5.2.4)

(iv) that the Project Manager and the Administrative Assistant have been allocated offices within the premises of AgSSIP in Accra, (paragraphs 5.1.1 & 5.2.3)

(v) Conclude a Subsidiary loan agreement, within three months after loan signature, with the Agriculture Development Bank (AgDB), under which the proceeds earmarked for the credit component shall be on-lent to AgDB under terms and conditions acceptable to ADF. The draft subsidiary agreement shall be submitted to the Fund for review and approval, prior to its signing, (para 5.2.5).

(vi) Provide ADF with evidence of the opening of a) an account into which ADF will deposit the proceeds of the loan b) a special account for the payment of funds relating to project operating costs in a bank acceptable to ADF, (para 5.5).

C. ***Undertakings***

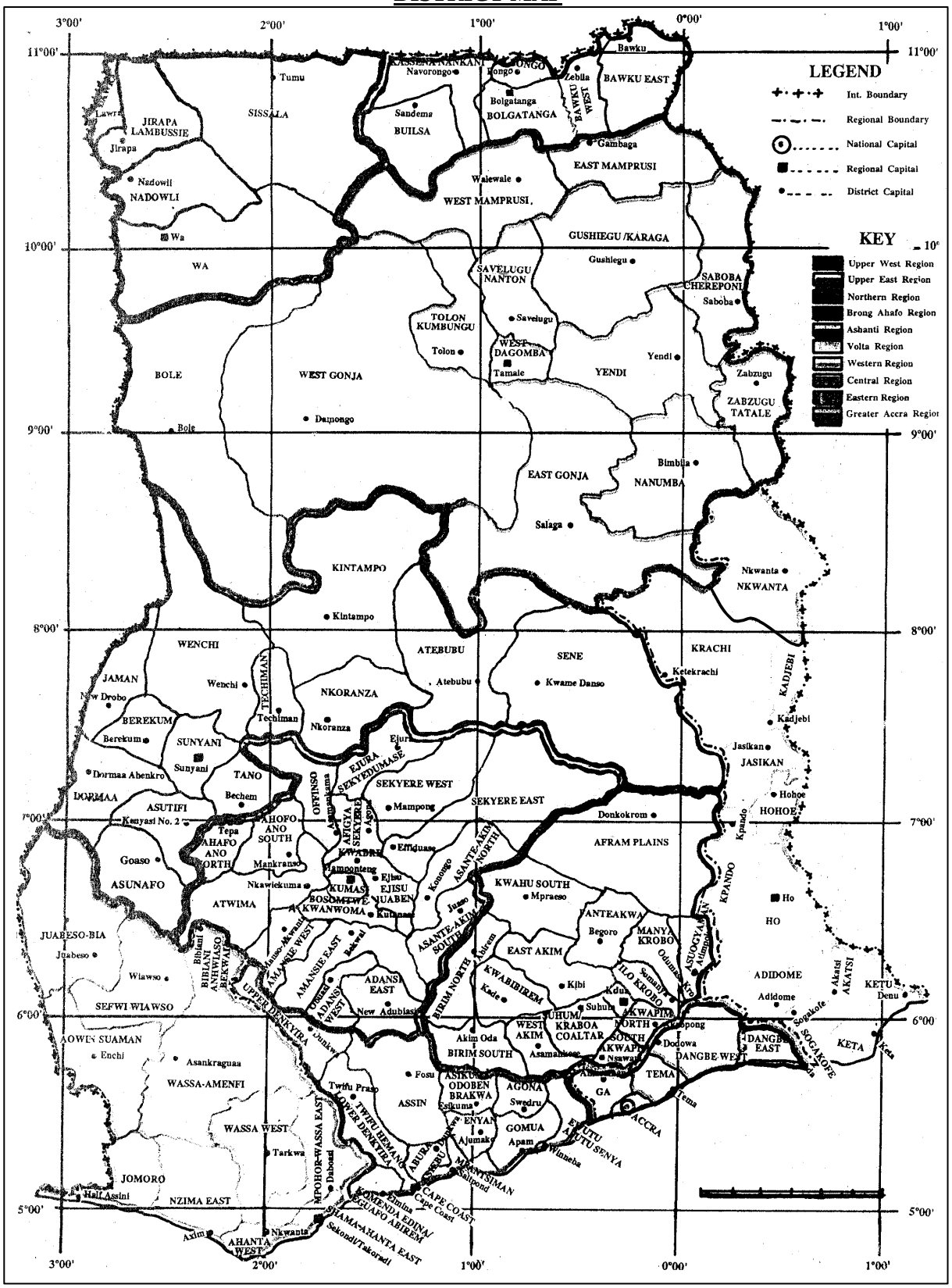
(i) The Borrower shall give an undertaking to ensure that each of the 25 districts under the project shall have at least one Animal Production and one Veterinary Services specialist to co-ordinate project activities at the village level (para 5.1.2).

(ii) The Borrower shall provide sufficient operating funds (direct and revolving) to cater for the increase of animal numbers in the breeding stations due to project intervention. (para 4.5.2)

ANNEX 1

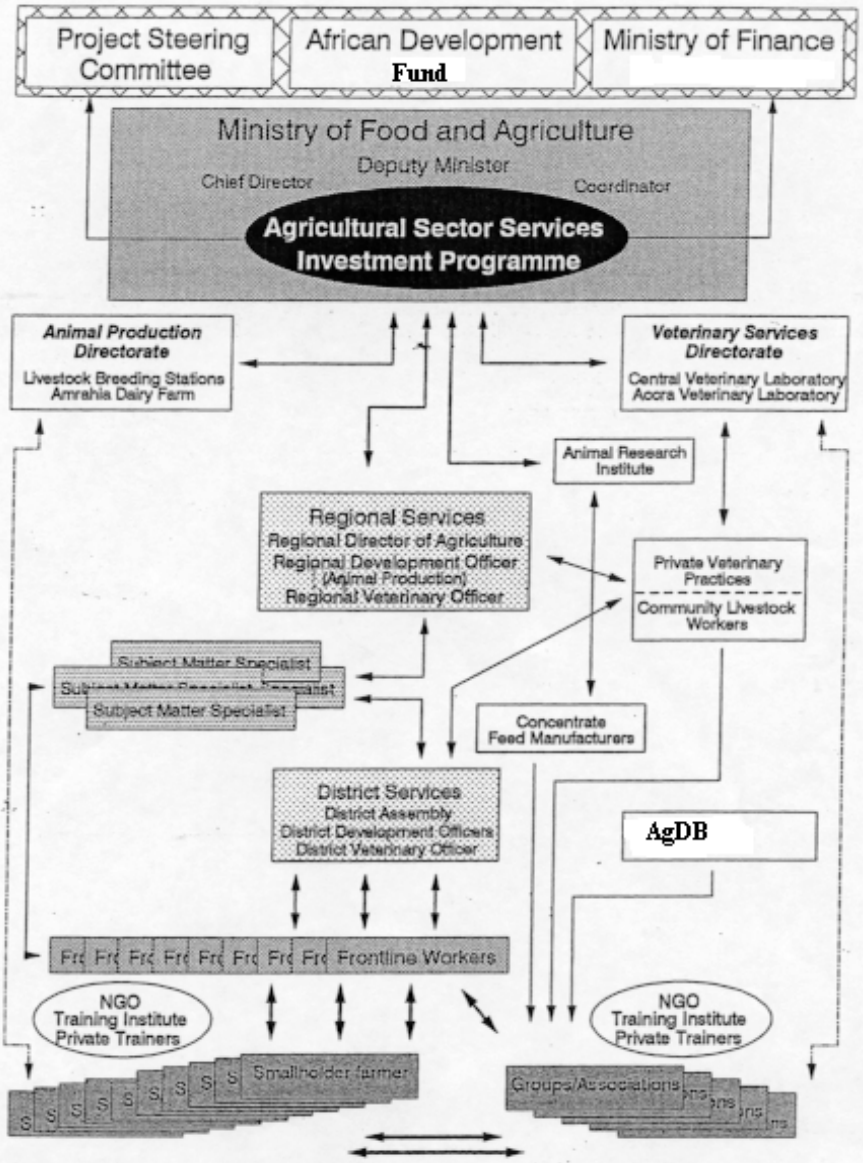
MAP OF GAHANA

Livestock Development Project
DISTRICT MAP



ANNEX 2

ORGANIZATION CHART OF THE LIVESTOCK DEVELOPMENT PROJECT



ANNEX 3

LIVESTOCK DEVELOPMENT PROJECT

ENVIRONMENTAL IMPACT OF THE PROJECT ACTIVITIES

1. The principal project activities planned under this project are : Livestock breed improvement, Dairy Improvement, Communal Grazing Land Development, Construction water supply points, control of major diseases, and Tsetse Control.

2. The project will promote increased animal production through increase in off-take rather than increase in population of animals, live stock breed improvement will result in increase of production and provide genetically more productive animals to replace the local breeds. The strategy to focus on increase in off-take rather than population numbers will ensure that the existing carrying capacity is maintained which will have no or minimal additional environmental effects.

3. The over sowing with legume plants in areas of communal grazing to improve animal feed will help in maintaining the soil fertility and to reduce pressure on grazing lands which will maintain the green coverage.

4. The project will introduce growing leguminous (e.g. Stylosanthes spp and Leucaena spp) into the farming systems, where most of the cattle and small ruminants are raised. Farmers will be trained in adopting appropriate cultural practices and management of legumes and in conserving crop residues and by-products from village processing industry (e.g., cassava meal, etc) for feeding livestock during the dry season. This would significantly increase the availability of feed to sustain more intensified production of livestock particularly dairy production, and hence ease the pressure on land, which will improve soil fertility.

5. Dugouts and boreholes will be constructed under the project to alleviate water supply problems in the dry season, especially in the northern regions, for animals as well as for people. Accompanying measures will be made to minimise the affects resulting from use of water sources, including fencing and planting leguminous plant around water points to prevent soil erosion from the movement of animals and to prevent the spread of diseases such as Guinea worm.

6. Control of animal diseases will have neutral effect environment, considering tsetse control methods will involve use of traps & screens, which have neutral effect on the environment. Control of other diseases will be by vaccination, a method that has no effect on the environment.

ANNEX 4

Project Implementation Schedule

PROJECT IMPLEMENTATION SCHEDULE

ACTIVITY	YEAR AND QUARTER																							
	Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Prepare Annual work Program and Budget																								
Livestock breed improvement																								
* restock 6 livestock Breeding stations																								
*Select participating breeder and train them																								
*Rehabilitation Animal Breeding stations																								
Dairy Improvement																								
*Distribute cross bred heifers																								
*Select and train farmers for zerograzing units																								
Communal grazing land Improvement																								
*Form farmer/grazier Groups & Associations																								
*Train in forage establishment and Management & seed production																								
*oversaw communal grazing areas																								
Control of major diseases																								
* Procure/produce require vaccines																								
* vaccinate animals against endemic diseases																								
* rehabilitate existing quarantine stations																								
Tsets control																								
*Conduct tsets survey																								
*Establish control units and start operations																								
Capacity building																								
*Farmers group formation & Training																								
*Train extension workers & Subject Mater specialist																								
*Conduct seminars																								
*Training of processors and traders																								
Credit																								

ANNEX 5

List of Goods and Services (UA '000)	
Categories	**ADF Resources**
A. Civil Works	3,327.96
B. Credit	4,144.75
C. Vehicles (trucks, motorcycles & bicycles)	982.11
D. Office, Lab. & Field Equipment	2,861.98
E. Farm Implements	311.25
F. Contract Services	560.10
G. Livestock Purchase	262.41
H. Training, Workshops & Seminars	
1. In-country Training & Project Implementation Seminars	5,657.90
2. Short Term Training Courses	326.81
4. HIV/AIDS campaign program	111.05
5. Livestock Related Disease Control Program	111.05
Subtotal Training, Workshops & Seminars	6,206.82
I. Operating Costs	923.17
Total	19,580.56

ANNEX 6
List of Items in Project Implementation Document

1. Detailed Project Cost Tables
2. Project Production Models
3. Financial and Economic Analysis Tables
4. Terms of Reference for Project Manager
5. Terms of Reference for Project Administrative Assistant
6. Terms of Reference for Project Steering Committee
7. Description of Group Formation

ANNEX 7 - SUMMARY OF BANK GROUP OPERATIONS IN GHANA, As at 30th June 2001

	Sector /Project Title	Finance Source	Date Approved	Date signed	Effective date	Deadline last disbursment	Percent Disbursed	Status
AGRIICULTURE								
1	Cocoa Rehabilitation	ADF	25/04/88	13/06/89	24/08/89	30/09/97	100%	Completed
2	Cocoa Rehabilitation	ADB	25/04/88	13/02/89	09/07/89	31/12/97	91%	Ongoing
3	Nasia Rice Development	ADB	17/09/73	18/12/73	19/04/74	31/12/75	100%	Completed
4	Nasia Rice Development (compl.)	ADB	21/12/76	01/08/77	01/02/78	30/06/79	98%	Completed
5	Mecanised Rainfed Cotton Production	ADB	20/08/75	17/10/75	18/03/76	31/12/82	57%	Completed
6	Palm Oil Milling Factories	ADB	31/03/76	31/03/76	14/07/76	14/02/77	92%	Completed
7	Line of Credit I	ADF	21/05/80	26/09/80	02/12/81	30/06/82	100%	Completed
8	Kpong Irrigation Study	TAF	16/12/83	29/02/84	22/05/84	31/12/95	100%	Completed
9	Line of Credit II	ADF	13/12/84	07/02/85	03/07/85	30/06/95	100%	Completed
10	Subri Industrial Plantations	ADF	15/11/84	07/02/85	12/06/85	31/12/98	96%	Completed
11	Sector Rehabilitation Loan (transport Section)	ADF	16/12/83	29/02/84	09/04/84	31/12/87	100%	Completed
12	Agricultural Sector Rehabilitation Loan	ADF	26/06/87	16/09/87	12/12/87	16/06/94	100%	Completed
13	Study of Small Irrigation Development Project	TAF	25/05/92	04/09/92	26/03/93	30/06/98	96%	Completed
14	Kpong Irrigation Project	ADF	17/09/90	14/08/91	11/03/94	31/12/98	82%	On-going
15	Kpong Irrigation Project	ADF	17/09/90	14/08/91	11/03/94	31/12/98	33%	On-going
16	Third Line of Credit to the Agric. Dev't. Bank	ADF	24/11/93	05/05/94	30/03/94	31/12/97	100%	Completed
17	Foods Crops Development	ADF	12/10/97	29/05/98		30/06/04	0%	NYE
18	Small Scale Irrigation Development Project	ADF	04/12/97	29/05/98		30/06/04	0%	NYE
19	Agro-Industrial sub-sector study	TAF	09/09/98	09/02/99	26/04/99	20/11/01	0%	On-going
20	Line of Credit IV to Agri. Dev. Bank	ADF	14/07/99	10/09/99		31/03/03	0%	NYE
21	Cashew Development	ADF	31/10/2000	08/03/2001	nye		0%	NYE
22	Afraim Plains Study	TAF	03/05/2000	29/12/2000	nye		0%	On-going
23	Special Food security Programme	TAF	17/05/2000	29/12/2000	nye		0%	On-going
24	Inst. Support to Rural Banks	ADF	07/09/2000	08/03/2001	nye		0%	NYE
25	Inland Valley Rice Development Project	ADF	18/05/2001	23/05/2001	nye		0%	NYE
25	***Sub-total I***						***70%***	
PUBLIC UTILITIES								
1	Accra Tema Water Supply Rehabilitation	ADF	18/10/88	23/06/89	24/08/89	31/12/98	98%	On-going
2	Accra Tema Water Supply Rehabilitation	ADB	18/10/88	13/02/89	05/04/89	31/12/96	100%	Completed
3	Accra Tema Water Sewerage Facilities	ADB	08/05/74	23/07/74	25/12/75	31/12/79	100%	Completed
4	Accra Tema Water Sewerage Facilities (Compl.)	ADB	06/04/77	01/02/78	20/09/79	13/11/86	95%	Completed
5	Interconnection Project	ADB	06/04/77	04/05/79	31/12/79	31/12/84	100%	Completed
6	Brong Ahafo Electricity Network	ADB	22/08/78	20//11/86	20/03/87	30/03/94	70%	Completed
7	Accra Sewerage Study (Grant)	TAF	17/06/86	14/08/91	31/11/93	31/12/96	100%	Completed
8	Telecommunication Network	ADB	29/10/90	13/01/78	15/06/78	30/06/94	98%	Completed
9	Accra Sanitation Study	TAF	30/05/2000	08/03/2001			0%	On-going
9	***Sub-Total II***						***84%***	
INDUSTRY & BANKS								
1	Industrial Sector Adjustment	ADB	27/05/88	13/02/89	29/03/89	30/06/94	100%	Completed
2	Bosa Tyre Rehabilitation	ADB	14/12/88	30/01/90	20/03/90	31/12/99	99%	On-going
3	Industrial Line of Credit	ADB	13/11/84	07/02/85	03/07/85	31/12/89	71%	Completed
4	Aboso Glass	ADB	17/01/75	03/07/75	15/02/76	31/12/81	100%	Completed
5	Cocoa Processing Factories	ADB	18/12/79	08/10/80	09/12/80	31/12/84	0%	CANCELLED
6	Gold Mining Rehabilitation	ADB	17/04/90	12/09/90	18/12/90	31/12/94	0%	CANCELLED
7	Pulp and Paper Mills	ADF	28/08/85	25/10/85	01/02/86	31/12/88	0%	CANCELLED
7	***Sub-Total III***						***68%***	
TRANSPORT								
1	Mpata-Elubo Road Construction	NTF	25/01/78	22/01/79	11/03/94	31/12/98	100%	Completed
2	Mpata-Elubo Road Construction	ADB	25/0178	22/01/79	11/03/94	31/12/98	91%	Completed
3	Railsways Project	ADB	28/04/81	12/05/81	20/09/82	24/12/86	100%	Completed
4	Anyinam-Kumassi Road Rehabilitation	ADF	22/11/85	20/12/85	22/07/86	31/12/95	57%	On-going
5	Achimota-Anyinam Road Study	TAF	24/08/92	04/09/92	15/04/93	31/12/99	43%	On-going
6	2 Rd Studies	TAF	31/08/93	09/02/94	31/10/94	31/12/99	27%	On-going
7	Achimota-Anyinam Road Rehabilitation	ADF	15/12/97	29/05/98	31/12/03	31/03/03	0%	NYE
8	Three Roads Study	TAF	20/10/99	17/02/00		31/12/02	0%	NYE
9	Tema-Aflao Road Rehabilitation	ADF					0%	On-going
10	Tetteh-Quarshie Circle Road	ADF					0%	On-going
10	***Sub-Total IV***						***36%***	
SOCIAL								
1	Women's Community Development	TAF	18/06/91	04/09/92	23/12/92	31/12/98	100%	On-going
2	Women's Community Development	ADF	18/06/91	04/09/92	23/12/92	30/06/00	45%	On-going
3	Hospital Rehabilitation Studies	TAF	27/09/85	25/10/85	02/03/87	30/06/94	99%	Completed
4	Tertiary Education Rehabilitation	ADF	18/06/91	04/09/92	08/02/93	31/12/00	53%	On-going
5	Health Services Rehabilitation I	ADF	16/01/90	31/11/90	01/08/91	31/12/99	87%	Completed
6	Health Services Rehabilitation	TAF	16/01/90	12/09/90	01/08/91	31/12/99	23%	Completed
7	Health Services Rehabilitation II	ADF	16/12/91	04/09/92	31/12/93	31/12/99	72%	On-going
8	Primary Education Rehabilitation Project	ADF	10/12/97	29/05/98	23/09/99	31/12/01	0%	On-going
9	Poverty Alleviation Project	ADF	10/12/97	29/05/98	04/05/99	30/04/03	3%	On-going
9	***Sub-Total V***						***47%***	
MULTI-SECTOR								
1	Private Sector Adjustment Loan	ADF	25/11/91	04/09/92	28/10/92	31/07/97	100%	Completed
2	Institutional Support to Two Ministries	TAF	28/10/98	02/02/99	10/12/99	31/10/02	0%	On-going
3	Economic Reform Support Loan	ADF	12/11/98	23/12/98	11/01/99	31/03/00	71%	Completed
4	Economic Reform Support Loan II	ADF	29/03/2001	23/03/2001	nye		0%	NYE
4	***Sub-Total VI***						***82%***	
64	**TOTAL GENERAL**						**65%**	

ANNEX 8

Economic Cash Flow (Cedis)

Model I - Vaccination against Brucellosis

	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6
Animals Vaccinated	80,000	70,000	60,000	60,000	60,000	60,000
Calves born w/o project (55%)	44,000	38,500	33,000	33,000	33,000	33,000
Calves born with project (70%)	56,000	49,000	42,000	42,000	42,000	42,000
Incremental births	12,000	10,500	9,000	9,000	9,000	9,000
Monetary Value (C300,000)	3,600,000,000	3,150,000,000	2,700,000,000	2,700,000,000	2,700,000,000	2,700,000,000

Model II - Vaccination against CBPP

	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6
Animals Vaccinated	500,000	400,000	300,000	300,000	300,000	300,000
Incremental animals (10%)	50,000	40,000	30,000	30,000	30,000	30,000
Monetary Value (C500,000)	25,000,000,000	20,000,000,000	15,000,000,000	15,000,000,000	15,000,000,000	15,000,000,000

Model III - Vaccination against Peste des Petits Ruminants

Animal Population	2,500,000
Incidence of disease	20%
Mortality w/o project	45%
Mortality with project	15%

	WO project	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6
Animals Vaccinated	-	2,000,000	1,000,000	500,000	500,000	500,000	500,000
Animals not vaccinated	2,500,000	500,000	1,500,000	2,000,000	2,000,000	2,000,000	2,000,000
Total Mortality	225,000	105,000	165,000	195,000	195,000	195,000	195,000
Incremental Animals		120,000	60,000	30,000	30,000	30,000	30,000
Monetary Value (C108,000)		12,960,000,000	6,480,000,000	3,240,000,000	3,240,000,000	3,240,000,000	3,240,000,000

Model IV - Vaccination against Newcastle Disease

Population of Birds	10,000,000
Incidence of disease	50%
Mortality w/o project	55%
Mortality with project	15%

	WO project	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6
Birds Vaccinated	-	5,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Birds not vaccinated	10,000,000	5,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000
Total Mortality	2,750,000	1,750,000	2,150,000	2,150,000	2,150,000	2,150,000	2,150,000
Incremental # of birds saved		1,000,000	600,000	600,000	600,000	600,000	600,000
Monetary Value (C7,000)		7,000,000,000	4,200,000,000	4,200,000,000	4,200,000,000	4,200,000,000	4,200,000,000
Economic Benfits from Animal Production		-250085000	-460790000	-633357040	-576174300	-254143220	359490370

	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6
Total Incremental Benefits	46,059,150,000	29,222,100,000	18,806,429,600	19,378,257,000	22,598,567,800	28,734,903,700
Total Project Economic Cost	67,973,460,668	38,635,882,324	32,724,619,250	22,090,205,262	14,112,449,453	12,802,503,804
Net Economic Benefits	(21,914,310,668)	(9,413,782,324)	(13,918,189,650)	(2,711,948,262)	8,486,118,347	15,932,399,896
EIRR	35%					

Annexe

GHANA
THE LIVESTOCK DEVELOPMENT PROJECT

Background

This corrigendum is prepared to make provision for five (5) 4-FWD Double Cabin pick-up vehicles under the ADF loan. Subsequent to the loan negotiations on 21- 23 August 2001, the Government of Ghana wrote to the Bank to reiterate its request for ADF to consider including the funding for the five (5) vehicles in the loan envelope, on the justification that the Government has limited foreign exchange and urgently needs to implement the project. The lack of adequate transport facilities would seriously jeopardise and slow down the implementation of the project. The corrigendum therefore presents the revised table on Sources of Finance and the revised List of Goods and Services under the ADF loan. There is no additional cost to ADF.

Sources of Finance and Expenditure Schedule

The project will be financed by the African Development Fund (ADF) and the Government of Ghana (GOG). The total ADF financing will be UA19.58 million, representing 88.7% of the total project costs. The ADF resources will finance 100% of the foreign exchange costs and local costs amounting to UA1.41 million (37.5% of total local costs) associated with operations and maintenance, and training of livestock small-scale operators and Government staff. **The Government contribution is estimated at UA2.45 million, equivalent to 11.1% of the total project cost.** The Government contribution will cover salaries of staff to be involved in the project implementation, and office utilities for the project management. Beneficiaries will contribute an equivalent of UA0.42 million, which will mainly comprise of operation and maintenance of bore holes. The financing plan of the project is shown in Table 4.3 below.

Table 4.3 Sources of Finance (UA '000,000)

Source	For. Exchange	Local Costs	Total Costs	% of T. Cost
ADF	18.17	1.41	19.58	88.7
Government	0.0	2.45	2.45	11.1
Beneficiaries	0.00	0.04	0.04	0.2
TOTAL	18.17	3.90	22.07	100

The revised list of goods and services incorporating the 5 four-wheel drive vehicles is indicated in the new Annex 5 below. Underlined numbers in bold indicate the changes in ADF resources.

ANNEX 5

List of Goods and Services (UA '000)

Categories	**ADF Resources**
A. Civil Works	3,327.96
B. Credit	**4,004.75**
C. \Vehicles (trucks, pick-ups, motorcycles & bicycles)	**1,082.34**
D. Office, Lab. & Field Equipment	2,861.98
E. Farm Implements	311.25
F. Contract Services	560.10
G. Livestock Purchase	262.41
H. Training, Workshops & Seminars	
1. In-country Training & Project Implementation Seminars	5,657.90
2. Short Term Training Courses	326.81
4. HIV/AIDS campaign program	111.05
5. Livestock Related Disease Control Program	111.05
Subtotal Training, Workshops & Seminars	6,206.82
I. Operating Costs	962.94
Total	**19,580.56**