



Food and Agriculture
Organization of the
United Nations



REVIEW OF THE LIVESTOCK/MEAT AND MILK VALUE CHAINS AND POLICY INFLUENCING THEM IN THE GAMBIA



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Published by the Food and Agriculture Organization of the United Nations and
the Economic Community of West African States
2016

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LIST OF ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank
AHPS	Animal Health and Production Services Unit
ANR	Agriculture and Natural Resource
CAADP	Comprehensive Africa Agricultural Development Programme
CBPP	Contagious Bovine Pleuro Pneumonia
D	Dalasi
ECOWAP	Community of the West African States Agricultural Programme
ECOWAS	Economic Community of the West African States
FAO	Food and Agricultural Organization of the United Nations
FASDEP	Food and Agriculture Sector Development Project
FO	Farmer Organization
FSQA	Food Safety and Quality Authority
GAfsp	Global Agriculture and Food Security Programme
GAMIS	Gambia Market Information System
GAMSAVINGS	Gambia Microfinance Savings Company
GAWFA	Gambia Women's Finance Association
GBA	Greater Banjul Area
GBOS	Gambia Bureau of Statistics
GDP	Gross Domestic Product
GFSQA	Gambia Food Safety and Quality Authority
GIEP	Gambia Investment and Export Promotion Agency
GLMA	Gambia Livestock Marketing Agency
GNAIP	Gambia National Agricultural Investment Programme
GoTG	Government of The Gambia
GPGA	Gambia Pig Growers Association
IFAD	International Fund for Agricultural Development
ITC	International Trypanotolerance Centre
KDF	Kombo Dairy Farm
KMC	Kanifing Municipal Council
LGAs	Local Government Authorities
LHDP	Livestock and Horticulture Development Project
LOA	Livestock Owners Association
LPICP	Livestock Productivity Improvement and Commercialization Programme
MFI	Micro Finance Institutions

MOA	Ministry of Agriculture
MS	Member States
NACCUG	National Association of Credit Unions
NAIPs	National Agricultural Investment Programmes
NARI	National Agricultural Research Institute
NASS	National Agricultural Sample Survey
NEPAD	New Partnership for African Development
NGO	Non-Governmental Organizations
OIE	World Organization for Animal Health
OIE PVS	Performance of Veterinary Services of the OIE
PAGE	Programme for Accelerated Growth and Employment
PROGEBE	Sustainable Management of Globally Significant Endemic Ruminant Livestock of West Africa
RAIP	Regional Agricultural Investment Plan
RFS	Reliance Financial Services
SDF	Social Development Fund
SPS	Sanitary and Phyto-sanitary Measures
TAD	Trans-boundary Animal Diseases
TCP	Technical Cooperation Programme
VISACAs	Village Savings and Credit Associations

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EXECUTIVE SUMMARY

Introduction: The livestock component of the Economic Community of the West African States (ECOWAS) Agricultural Programme (ECOWAP) is the strategic action plan for the development and transformation of the livestock sector in West Africa. ECOWAP is part of the CAADP implementation and one of the main objectives of the livestock component is to reduce dependency on imports of food of animal origin outside of the region. It is envisaged to achieve this objective through the development of livestock/meat and dairy value chains. The objective of this consultancy is to review the livestock/meat and milk value chains and take stock of policies influencing them.

Socio-economic context of the meat and milk value chains: Agriculture (including crops, livestock, fisheries and forestry), one of the main drivers of economic growth in The Gambia, contributed about 30.5 percent to Gross Domestic Product (GDP) in 2010. The livestock sub-sector accounted for about 10.1 percent to the national GDP and its share of agricultural GDP was estimated at 30.8 percent. There are no readily available data on the contribution of meat and milk value chains to national GDP. Household cash income, estimated at 6.5 percent, is generated through the sale of live cattle, small ruminants, pigs, and milk. Milk, draught power and manure were also estimated to contribute 35.1, 12.9 and 8.9 percent, respectively. Non-cash income is derived from milk consumed on-farm, small ruminants and pigs slaughtered and consumed on-farm, manure applied to crop fields, and draught power.

The population of The Gambia is estimated at 1.7 million and the agricultural sector provides employment for about 75 percent of the labour force. Gambian farmers practice mixed farming (crop/livestock production) and in terms of activity, 77.36 percent and 11.23 percent of household family members are engaged in crop farming as principal and secondary activities, respectively. The primary production objectives of cattle owners in the mixed crop-livestock farming systems are the generation of savings, security, asset protection, manure, milk and meat production. Pig rearing is restricted to non-Muslims, but is important because it contributes to household food security and is a source of income for poor producers.

Description and mapping of the meat and milk value chains: Fresh milk is produced under the traditional smallholder mixed farming system which utilizes trypanotolerant N'Dama cattle for meat and milk as well as a market-oriented semi intensive system which utilizes exotic breeds and crossbred (local N'Dama and exotic breeds - FIs). The meat value chain relates to beef, mutton, goat meat and pig meat (pork). The actors in the meat and milk value chains include input suppliers, small-scale producers, livestock dealers, butchers/processors, retailers and end-users.

The 2011/2012 Agricultural Census reported cattle population at 398 472 heads of which 392 288 are of the N'Dama breed and 6 184 are Zebu type Gobra breed and crosses between the Gobra and N'Dama. Sheep, goat, and pig populations were also estimated at 143 939, 302 878, and 42 384, respectively. Meat production is estimated at about 7 535 tonnes. Beef and mutton are produced from cattle and small ruminants managed under free range by small-scale producers. Pigs are raised under backyard husbandry systems and free-range which involves scavenging.

The total production of meat and milk from the traditional mixed farming systems are estimated at 7 535 and 24 597 metric tonnes, respectively. There are no data on post-harvest losses for meat. Meat is generally sold immediately after slaughter as “hot” meat. As most retailers at municipal

markets lack cold storage facilities, losses could be incurred at this level. With regards to milk, post-harvest losses could be as high as 60 percent during the rainy season coinciding with higher levels of milk production.

The critical inputs required for meat and milk production include animals, feed, water, veterinary drugs and vaccines. Available feed resources for the ruminant meat and milk production include forages from rangelands – the main sources of forage for most of the year; crop residues (maize, millet, sorghum stovers; rice straw and groundnuts) and crop by-products (millet, sorghum and rice bran, groundnut cake).

Slaughtering of cattle, sheep and goat is conducted at abattoirs, mini-abattoirs and slaughter slabs. Three types of actors undertake milk processing in The Gambia: (i) family of milk producers and independent traders/vendors (using traditional processing methods), (ii) farmer cooperative societies (using improved technologies), and (iii) a medium scale milk processor (using a modern processing plant).

The potentials to increase milk and meat production and value addition are based on the opportunities offered by existing production and processing technologies. Possibilities exist to increase domestic production through improved access to critical inputs and support services including quality feeds, disease control, and marketing services. Production traits (high daily live weight gains) of indigenous cattle and small ruminants can be improved through breeding and selection within the existing population. The high market demand for meat in the Greater Banjul Area owing to population growth, urbanization and growth of tourism and hospitality industry is an opportunity to increase production and value addition.

The Gambia relies on meat and milk imports to satisfy the needs of segments of its domestic demand; imports of high quality meats are for the supermarket and hotel trades. In 2012, 25 952 tonnes of meat products were imported. Poultry meat constitute the bulk of the imported meat (8 091 tonnes or 91 percent). Beef and sheep and goat meat constitute 7 and 3 percent, respectively. In 2012, 33 210 tonnes of milk and milk products was imported. The main dairy products imported are milk powder, UHT milk, flavoured milk, condensed/evaporated milk, yoghurt, butter and cheese. Basic data on milk imports available is not desegregated, thus it was not possible to convert the processed milk products to liquid milk equivalents.

Infrastructure and other support services: In general there is a lack of appropriate facilities and equipment along the meat and milk value chains. Extension and technical support to value chain actors are provided by Regional Directorates of the Department of Agriculture. Livestock service delivery, including veterinary services, has over the years been poor. The National Agricultural Research Institute (NARI) and the International Trypanotolerance Centre (ITC) provide research services. Other technical support services include the provision of market information and financial services. The Gambia Food Safety and Quality Authority (GFSQA) is the sole competent authority for food safety and quality control.

Marketing, trade and prices: The quantities of meat and milk trade are estimated at 7 534 and 18 448 metric tonnes, respectively. On-farm consumption of milk is estimated at about 30 percent during the dry season and 20 percent during the rainy season; the average for the year is thus 25

percent (6 149 tonnes). The remaining 75 percent (18 448 tonnes) is marketed. Data on home consumption of meat from on-farm slaughter is not available.

Producer prices of live animals for slaughter depend on the weight and body condition of the animal. The weight and body condition are visually assessed by the producer and trader. Neither a grading system nor scales to accurately determine the weight of the animal exist in the livestock markets. The consumer prices of milk range between US\$ 0.54 to US\$ 1.35; the price is higher in Banjul and Kanifing Municipality. Meat prices are determined by the Gambia Livestock Marketing Agency. Butchers operating in the local markets sell meat by weight; most of the meat sold is generally a mixture of meat with bones and some offal. The average price for meat and bone, steak and mutton are D78 (US\$2.4) D93 (US\$2.9) and D100 (US\$3.1). The largest super market in The Gambia, Kairaba (located in the heart of the business centre along the busy Kairaba Avenue) sells steak and meat and bone at D210 (\$6.6) and D135 (\$4.2), respectively.

The incidence of poverty is higher in the rural than in urban areas. A key underlying cause of poverty in The Gambia is the relatively high unemployment and underemployment rates. Unemployment amongst the youths is estimated at over 40 percent and 70 percent of women are engaged in low productivity rural subsistence agriculture. The effective demand for meat and milk and their products are constrained due to the low per capita income in the rural areas. The greatest demand is from the Greater Banjul Area with its higher population concentration (57 percent of the national population). The overall earnings of people in this main consumer market are higher than the rest of the country.

Governance and institutional arrangement: The milk value chain is dominated by smallscale farmers practising the integrated crop/livestock production system. There are a few commercial dairy farms operating in the Greater Banjul Area but their impact on milk production is limited. All of the operations in the supply chain from producer to the collectors to the vendors are based on trust and mutual understanding. Like the milk value chain, cattle, small ruminant meat chains are also dominated by smallscale producers operating mixed crop/livestock production systems. Producers' interaction with with livestock dealers occur either on-farm or at the local weekly markets. Supporting actors who facilitate the activities of the primary actors in the milk and meat value chains include animal feed suppliers, veterinary service providers and research and extension service providers' and in some cases financial services providers.

Value-chain associations active in the livestock sector are the Livestock Owners' Associations, the Sheep and Goat Breeding and Fattening Association, the Gambia Indigenous Livestock Multiplier Association, the Pig Farmers Association; the Moringa Producer Association, the Livestock Feed Vendors Association, the Livestock Dealers Association, the Butchers Association and dairy cooperatives. The key strengths of the associations are: they have constitutions and are registered with the Attorney General's Chambers; they are recognized by the government. There are no NGOs acting in support of the chains.

National or regional project from which the value chains benefit: The value chains benefit from two national projects and one regional project: the national projects are the Livestock and Horticulture Development Project and the Food and Agriculture Sector Development Project. The regional project is the Sustainable Management of Globally Significant Endemic Ruminant Livestock of West Africa project.

Policies and strategies: The government has developed an Agriculture and Natural Resources (ANR) Policy Framework (2009-2015) to chart the nature and scope of its interventions in poverty reduction and achievement of Vision 2020 and the Millennium Development Goals with the following key strategic objectives: improved and sustainable measurable levels of food and nutrition security in the country particularly for the vulnerable populations; a commercialized ANR sector ensuring measurable competitive, efficient, and sustainable food and agricultural value chains, and linkages to markets; institutions (public and private) in the sector are strengthened, and providing needed services, strong and enabling environment, and reducing vulnerability in food and nutrition security; and sustainable effective management of the natural resource base of the sector.

The Policy Objectives of the livestock sub-sector include the following: By the year 2015 sustainable production and productivity of livestock improved and meeting at least 75 percent of national demands in meat and meat products and by at least 25 percent of milk products over present levels; and value chains of the livestock sub-sector are efficient, effective and linked directly to markets, producing competitive products and increasing incomes and employment. The areas of focus of the policy include advancing the process of commercializing and modernizing the sector; strengthening selected institutions to deliver needed services; and supporting the livestock sub-sector for increased production. Related to these objectives are the following key strategies: carry out special initiatives to revitalize, modernize and commercialize the sub-sector to achieve significant increases in producing competitive meat and dairy products to meet national requirements and the local high value markets (tourist and entertainment industries); and diversifying the livestock production base.

The policy does not articulate a specific livestock breeding policy or strategies to achieve the objective of increasing milk and meat production over present levels. Strategies to improve feeding systems in order for farmers to better utilize the genetic potential of their cows for milk production were also absent. The Policy is also silent on the issue of animal genetic resource conservation. In addition, there is a lack of conducive policy for promotion and support of private veterinary services for the delivery of animal health care.

The government provides incentives to investors; and agriculture including animal husbandry, meat processing, tannery and export of live animals, is one of the priority areas identified. In this regard, the government provides incentives for those eligible under the Gambia Investment and Export Promotion Agency (GIEPA) Act 2010.

The government's Agricultural and Rural Financial Services policy objective is to establish appropriate systems and mechanisms to provide financial services to all categories of farm enterprises with particular focus on small and medium holdings, youth and women constitute the ultimate objective of the sub-sector. The key strategies to achieve the objectives include the following: strengthen existing systems and create different types of financial delivery systems and mechanisms; pursue, finalize and operationalize the creation of an Agricultural Development Fund/Bank; build the capacities of selected institutions of both the supply and demand sides of rural finance; strengthen and expand existing linkages between the economic agents and the financial services providers; and monitor and evaluate the financial performance of the financial services systems and the linkages established.

The National Trade Policy (2011-2016) provides the framework for trade in commodities, including livestock. The policy's strategies and measures relevant to livestock comprise the following: pursuance of policies to improve the agribusiness environment to attract commercial investment in agriculture including livestock production; promotion of the processing of agricultural produce for value addition; and ensuring that national products meet international standards to improve market access.

In 2009 the Government of The Gambia developed The Comprehensive Africa Agriculture Development Programme (CAADP) Compact under New Partnership for Africa's Development (NEPAD). The main goal of CAADP is to help African countries reach a higher path of economic growth through agriculturally-led development which eliminates hunger, reduces poverty and food and nutrition insecurity, and enables expansion of exports. The Economic Community of West African States (ECOWAS) has been mandated to support and coordinate the implementation of the program. In this context, ECOWAS developed the regional agricultural policy (ECOWAP). The general objective of the Regional Agricultural Policy adopted by ECOWAS is to contribute in a sustainable way to meeting the food needs of the population as well as to their economic and social development, and to the reduction of poverty in the Member States, thus to reduce existing inequalities among territories, zones and nations.

Acts, regulations and laws governing livestock value chains include the Diseases of Animal Act (1844); the Medicines Act (1984); the Veterinary Council Act (2000); the Food Safety and Quality Act (2011); the Gambia Livestock Marketing Agency Act (2008); and the Gambia Standards Bureau Act (2010): This latter established the Gambia Standards Bureau which is responsible for the development of national standards including food standards. It also has responsibility for scientific metrology.

Major constraints requiring policy interventions: Major constraints requiring policy interventions are as follows: the lack of appropriate policy and legal framework, including local conventions for the protection and management of grazing lands, cattle tracks and watering points; the ANR Policy is silent on the issue of animal genetic resource conservation and the use of exotic/temperate pure breeds and their crosses; lack of a dedicated department responsible for the delivery of animal health and production services to smallholder farmers and for the regulation of the sub-sector; and lack of conducive policy for promotion and support of private veterinary services for the delivery of animal health care services.

Suggested policies for smooth operation of meat and milk value chains: domesticate the ECOWAS Transhumance Policy; articulate and adopt a grazing lands, cattle tracks and watering points policies within the Agriculture and Natural Resources Policy framework and promulgate the necessary legislation and regulatory framework and enforcement mechanism; articulate and adopt a specific livestock breeding policy, strategies and programmes that could respond to attaining the current policy objectives of increasing milk and meat production by at least 25 and 75 percent, respectively over present levels; and articulated and adopt well defined roles for the public and private veterinary service providers in conformity with the recommended World Organization for Animal Health (OIE) sanitary mandate.

Constraints affecting meat and milk value chains and proposed solutions: The critical constraints affecting the dairy and meat value chains include: limited milk production potential of the

N'Dama cow; lack of quality breeding animals; non availability of FIs and pure breeds in the local market and the high cost of importing these animals from Senegal; absence of a dedicated or structured AI service; seasonal fluctuation in forage availability accentuated by recurrent bush fires; restricted availability of low-cost feed sources and watering facilities; lack of facilities in terms of transport, milk collection centres, cooling systems, processing facilities, adequate marketing outlets; and high post-harvest losses.

The proposed solutions include the following: sensitize farmers on the need to improve their dairy herds and increase milk production through selection and breeding; up-scale the pure breeding programme; promote the stabling/compost pen technology; encourage, promote and support private sector investments in artificial insemination services in the low tsetse challenge Greater Banjul Area; build the capacity of the producers; build on current knowledge and feeding/coping strategies; conduct an inventory and analysis of range resources; identify water infrastructure needs and develop watering points; develop guidelines for cost sharing and use of rehabilitated/developed livestock infrastructure; promote production of leguminous forages; and assist the established feed mills to provide adequate and balanced nutritious feed stuff for dairy cows to increase milk production.

Livestock processing and marketing are constrained by inadequate or absence of basic facilities like sheds, feeding and watering facilities at the livestock markets (*lumos*); poor hygienic conditions of abattoirs, processing facilities, transportation and butcher shops; and absence of appropriate transportation for live animals and processed meat. The proposed solutions are: Improve livestock markets by providing adequate facilities for animal handling, upgrade slaughter, processing facilities, transportation and butcher shops to comply with the national food safety and quality regulations, and provide appropriate transport for live animals and processes meat (refrigerated vans).

Prioritized area of intervention

The prioritized areas of intervention in response to the needs of the value chain actors are in order of importance are:

- development of processing and marketing infrastructure and equipment;
- support to producers to improve production and productivity, including breeding; and
- Development of biosecurity, food safety and quality management and control systems and develop the capacities of value chain actors to comply with national food safety and quality regulations.

Suggested projects and programmes (investment plans)

The proposed programme takes cognizance of the livestock sector policy and strategies, the GNAIP, the on-going development projects, and attempts to address some of the *fundamental constraints to the development of the livestock meat and dairy value chains*. The title of the proposed programme is the Livestock Productivity Improvement and Commercialization Programme (LPICP): The overall objective is to develop a sustainable livestock industry that contributes to the improvement of the livelihoods of all the actors in the livestock industry/value chains and the overall national economy.

The specific objectives are: (i) to improve livestock productivity, increase value addition and market access; (ii) to make available to consumers competitive, quality and safe meat and dairy products; (iii) to improve the living standards of the people engaged in the livestock industry through increased income generation; (iv) to contribute to enhancing the nutritional status of the general population.

The proposed programme would have four components: Integrated Livestock Production (ii) Livestock and Animal Products Processing and Marketing; (iii) Development of Biosecurity, Food Safety and Quality Management and Control Systems; and (iv) Programme Management. The programme/investment plan cost is estimated at about US\$ 5 million.

I. INTRODUCTION

The livestock components of the Economic Community of the West African States (ECOWAS) Agricultural Programme (ECOWAP) is the strategic action plan for the development and transformation of the livestock sector in West Africa endorsed by Ministers of Member States (MS) in charge of livestock in March 2011. The ECOWAP is part of the Comprehensive Africa Agricultural Development Programme (CAADP) implementation and its livestock component has, as one of its main objectives, reducing dependency on imports of food of animal origin outside of the region. It is envisaged to achieve this objective through the development of livestock/meat and dairy value chains.

In the recent past, several studies identified constraints hindering the development of livestock value chains and proposed solutions which need to be tested and turned into policy instruments. These policies are expected to be embedded into the Agricultural Investment Plans of ECOWAS (RAIP) and National Investment Plans (NAIPs) of the Member States (MS). Taking into account the comparative advantage in providing technical support for the development of value chains and their policies of the Food and Agriculture Organization of the United Nations (FAO), the Department of Agriculture and Rural Development of ECOWAS Commission requested assistance through a Technical Cooperation Project (TCP) to facilitate the process. In response, FAO approved the *Support to policy initiatives for the development of livestock/meat and dairy value chains in West Africa project* (TCP/SFW/3402). The implementation of the Project has started and one of the initial activities is for a national consultant to review the status of the two value chains in MS.

Objective: The objective of this consultancy is to review the livestock/meat and milk value chains and take stock of policies influencing them.

The expected outputs of the consultancy are as follows: The current status of livestock/meat and milk value chains in the country established; policies on livestock/meat and milk value chains in the country known and gaps identified; projects and programmes for the development/enhancement of livestock/meat and milk value chains identified, and priority investment plans for each value chain identified; policies facilitating the development or enhancement of livestock/meat and milk value chains identified and mechanism of embedding them in national key policy documents suggested; national validation workshop organized and the findings of the consultancy presented.

The validation workshop of the draft report was held on the 10th June, 2013 and the comments gathered from the workshop have been incorporated, where appropriate, in this final report.

2. SOCIO-ECONOMIC CONTEXT OF THE MEAT AND MILK VALUE CHAINS

2.1. Current Gross Domestic Product (GDP)

The Gambia's current GDP is estimated at US\$ 620 953 million with and estimated growth rate of 6.3 percent (Table 1).

Table 1: Current GDP at Constant 2004 Prices ('000 US\$) and Trends

	2004	2005	2006	2007	2008	2009	2010	2011 Rev.	Growth (percent)	2012 (Est.)	Growth (percent)
National GDP (US\$)	579 753	603 481	549 883	663 477	773 718	689 952	700 113	638 274	4.6	620 953	6.3
Agriculture	155 656	159 866	135 760	155 204	215 708	201 898	213 826	148 008	-27.5	145 655	7.5
Livestock	48 000	50 905	51 321	67 027	76 075	60 768	60 780	60 038	45.70	56 705	12.4
Agric.'s share to national GDP (percent)	26.85	26.49	24.69	23.39	27.88	29.26	30.54	23.19	3.40	23.46	3.2
Livestock share to national GDP (percent)	8.28	8.44	9.33	10.10	9.83	8.81	8.68	9.41	3.50	9.13	1.9
Livestock share to agric. GDP (percent)	30.84	31.84	37.80	43.19	35.27	30.10	28.42	40.56	3.90	38.93	3.4

Source: Central Bank of the Gambia (April, 2013)

2.2. Contribution of each of the meat and milk value chains to national GDP and its trend

There are no readily available data on the contribution of meat and milk value chains to national GDP. The Gambia Bureau of Statistics data is not desegregated. The Gambian economy has been stable over the years; from 2004 to 2011 the economy grew by 4.6 percent (Table 1). Agriculture (including crops, livestock, fisheries and forestry), one the main drivers of the economic growth, contributed about 30.5 percent in 2010; from 2004 to 2011, the sector grew by 3.4 percent. In 2004 the livestock sub-sector accounted for about 8.28 percent of the national GDP and in 2010 it accounted for 10.1

percent. The sub-sector grew by 3.5 percent from 2004 to 2011. In 2004, the livestock sub-sector's share of agricultural GDP was estimated at 30.8 percent and 40.5 percent in 2011. From 2004 to 2011, the sub-sector contribution to agricultural GDP grew by 3.9 percent.

2.3. Contribution to household income, wellbeing, employment

Household income generated by livestock activities includes both cash and non-cash income. Cash income is generated through the sale of live cattle, small ruminants, pigs and milk. The most recent estimate, 6.5 percent, of the contribution of endemic ruminant livestock to household income was reported by Fall et al. (2011). Milk, draught power and manure were also estimated to contribute 35.1, 12.9 and 8.9 percent, respectively.

The population of The Gambia was estimated at 1.3 million in 2003 (Population and Housing Census, Gambia Bureau of Statistics, 2003) with a growth rate of 2.8 percent – the current population is thus estimated at 1.7 million. According to the same census 2.6, 24 and 29 percent live in Banjul (the Capital), Kanifing Municipal Council and West Coast Region, respectively. The agricultural sector provides employment for about 75 percent of the labour force. In terms of activity, 77.36 percent and 11.23 percent of household family members are engaged in crop farming as principal and secondary activities, respectively (2011/2012 Agricultural Census). According to the census data, livestock contribution to employment appears not to be encouraging. It should be noted that Gambian farmers practice mixed farming (crop/livestock production). Cattle and small ruminant production systems, including ram fattening for marketing during *Tabaski* (*Idel Kabir*) period undertaken by both rural and peri-urban farmers are important sources of part-time jobs for rural household. The agro-processing sub-sector has also been identified as a contributor to employment. Traditional milk and meat processing and marketing also provide significant employment opportunities.

2.4. Proportion of population engaged (employment, in meat and milk value chains)

The proportion of the population engaged specifically in meat and or milk production is not known.

2.5. Main objectives of producing meat and milk

According to Sumberg (1988), livestock are kept for capital accumulation and income (as manifested by the high level of male offtake for meat). Barton and Bennison (1997) also indicated the primary production objective of livestock owners is the generation of savings, security, asset protection, manure and milk for home consumption. Hired herdsman place significantly more value on milk production than cattle owners. Farmers in the mixed crop-livestock farming systems have multiple objectives to livestock species, most farmers raise animals to produce meat followed by draft power and milk production (Somda et al., 2004). Small ruminants are kept mainly to generate income, as savings and for ceremonial purposes. Milk from goats is exclusively used for home consumption. Pig rearing is restricted to non-Muslims, but is important because it contributes to household food security and is a source of income for poor producers.

3. DESCRIPTION AND MAPPING OF THE MEAT AND MILK VALUE CHAINS

3.1. Structure of the meat and milk value chains

The meat value chain relates to live animals, beef, mutton, goat meat and pork. The actors in the meat value chain include input suppliers, small-scale producers, livestock dealers, butchers/processors, retailers and end-users. Producers sell live animals to primary livestock dealers on farm or at the weekly markets. The primary dealers then resell these animals to butchers or transport them to the terminal markets where they are sold to butchers or individual consumers. The butchers then slaughter the animals and retail the meat to consumers.

Fresh milk is produced under the traditional smallholder mixed farming system¹ which utilizes trypanotolerant N'Dama cattle for meat and milk and the market-oriented semi intensive system utilizing exotic breeds and crossbred (local N'Dama and exotic breeds - FIs). Surplus milk is either processed on farm or sold to collections or processors who add value to the milk. The milk is then sold to end users by vendors/retailers in the local markets.

The actors in the meat and milk value chains are supported by a range of technical service providers, including government agencies, projects and the private sector.

3.2. Physical flows of meat and milk among the different components (actors)

3.2.1. Cattle and Small Ruminants value chains

Cattle and Small Ruminants Meat Value Chains are shown in the flow chart below (Figure 1)

¹ The mixed farming systems are characterized by diversity in crop and livestock production with the crop production systems comprising cereals, leguminous crops, vegetables and fruit, trees whilst the livestock systems comprise cattle, small ruminant and poultry.

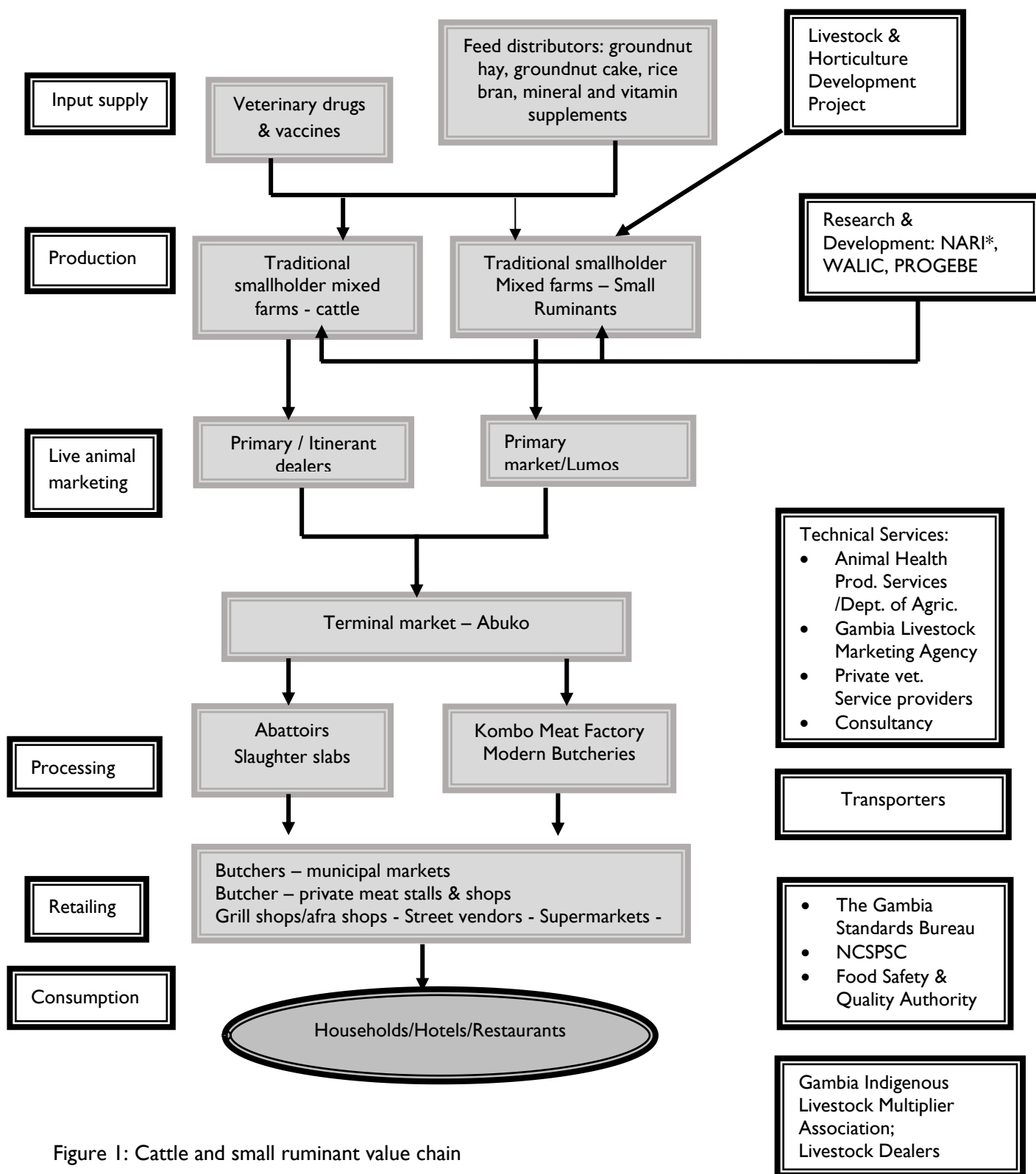


Figure 1: Cattle and small ruminant value chain

*NARI = National Agric. Research Institute, WALIC = West African Livestock Innovation Centre (former ITC) and PROGEBE = Sustainable Management of Globally Significant Endemic Ruminant Livestock of West Africa project.

3.2.2. The pig value chain

The pig value chain flow chart is depicted in Figure 2 below:

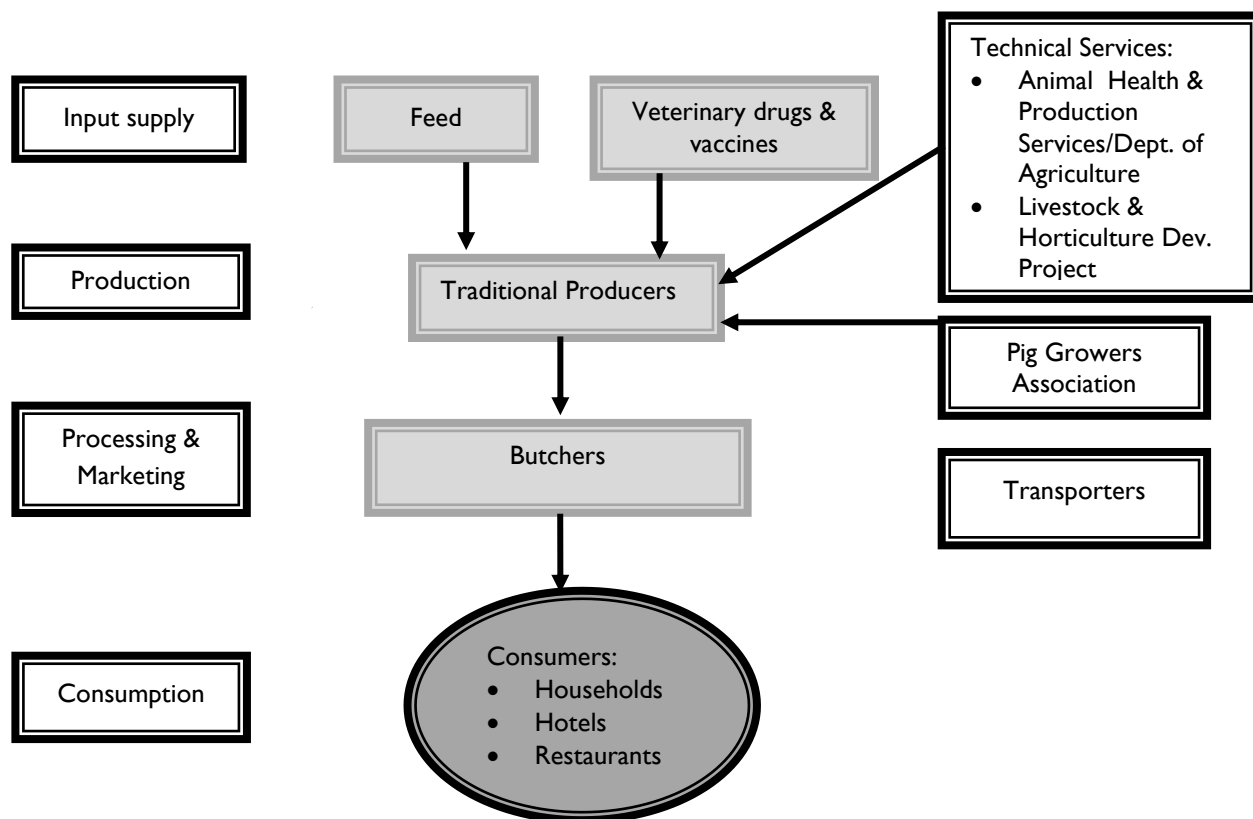


Figure 2: Pig value chain flow chart

3.2.3. The milk value chain

The milk value chain flow chart is shown in Figure 3 below:

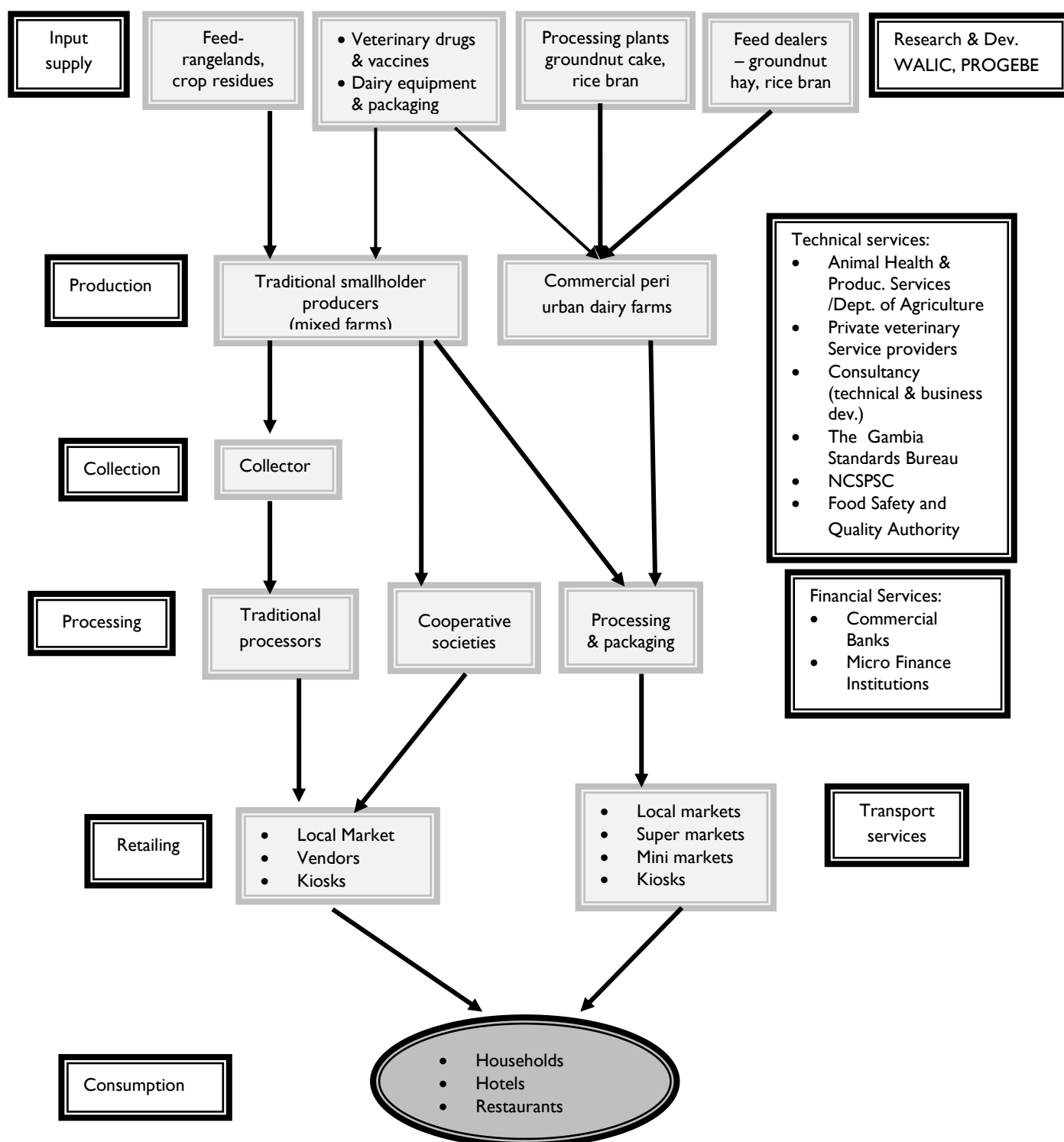


Figure 3: Milk Value Chain Flow Chart

Primary production processes

3.2.3. Prevailing livestock farming or other animal production systems

Cattle/beef production under the traditional smallholder farming system

This system is the main source of beef in the country. The system utilizes trypanotolerant N'Dama cattle; they are kept in communal herds and managed under traditional/free range system with little or no supplementary feeding. Under the current extensive feeding system, growth rates are low with mature animals losing between 10 to 25 percent of their body weight in the dry season.

Small ruminant (mutton and goat meat) production under the traditional smallholder mixed farming system

Small ruminants (Djallonke sheep, West African Dwarf Goats and Sahelian breeds and crosses) are generally kept in flocks in the compounds of the owners. During the rainy season, however it is common to find communal village flocks entrusted to shepherds. Animals that are not pooled into this communal village flocks are mainly tethered during the day to avoid damage to crops. During the dry season, the animals roam around the village grazing on available grasses, shrubs and scavenging on domestic agricultural wastes. Housing in the form of simple temporary sheds is constructed within the compound for sheltering the animals at night. Supplementary feeding is generally provided especially to lactating ewes and does, and to fattened stock.

Market Oriented Improved Sheep Production System

The main strategy is to fatten lean rams over a three-month period using groundnut hay, oil seed cakes and cereal brans. The rams are usually purchased at livestock markets in The Gambia or in neighbouring countries with a limited number are obtained from the farmers' own flocks. Tabaski is the most profitable time to market rams in The Gambia. However, the number of rams produced and marketed by Gambian farmers has not been documented, but observations over the years have shown that most of the rams slaughtered during the feast originate from Senegal, Mali and Mauritania. Lack of capital to purchase animals, feed and veterinary inputs and inadequate institutional support has forced small holders to refrain from participating in these schemes. Another contributing factor is the government's interference in the pricing of the rams at the points of sale.

Pig production system

There are 300 pig farms in Kanifing Municipality, West Coast Region, 200 in North Bank Region, 30 in Central River Region and 4 in Lower River Region and 2 farms in Upper River Region. The pigs are managed under the free-range husbandry system which involves free scavenging on garbage. Most pig farmers use swill as feed because other feedstuffs are either not available or are expensive. In some villages, the animals are provided with a shed in backyards where they are confined at night; the floor is earth with deep litter and hygiene is generally very poor. Since pig rearing is a low input enterprise, production is very low.

Milk production under the traditional smallholder mixed farming system

The traditional smallholder mixed farming system is characteristically extensive, subsistent and low input in nature, it however accounts for the bulk of the milk produced in the country. Under the traditional smallholder mixed farming systems milk production is primarily for home consumption and as payment to herdsman with the excess sold in informal markets to generate cash income.

The market-oriented semi intensive production systems

The market-oriented semi intensive production systems emerged as a result of the growing demand for milk and milk products in the peri-urban areas due to population growth. The semi intensive system (i.e. grazing during the day and confinement and supplementation in the evening) utilizes cross-breeds (N'Dama x Jersey, N'Dama x Friesian) in the low to medium tsetse challenge areas of the West Coast and North Bank Regions. Daily milk production is estimated at 5.5 litres. A limited number of exotic breeds (Jersey and Holstein) are intensively managed by two farms (Kombo Dairy Farm and MACE), all located in the Greater Banjul Area (GBA)². The current numbers of FIs and exotic cows are estimated at 100.

3.2.4. Average farm size

Livestock population and ownership figures were obtained from the 2011/2012 Agricultural Census.

Cattle

Cattle population is estimated at 398 472 heads of which 392 288 are N'Dama breed and 6 184 are Zebu type Gobra breed and crosses between the Gobra and N'Dama (Table 2). About 30 928 households reported ownership of cattle with 13.3 percent owned by women. Average herd size estimates vary and range between 50, 57 and 100.

Table 2: Cattle population and ownership

	WCR	LRR	NBR	CRR	URR	Total
Population	39 935	39 613	75 867	172 672	70 385	398 472
Nr. of households with cattle	4 490	3 431	7 775	10 582	4 670	30 928

Sources: 2011/2012 Agricultural Census

Sheep and goats

The number of households engaged in sheep production is estimated at 29 987 representing 19 percent of the total number of households in The Gambia. The estimated number of households engaged in goat production is 50 923 representing 32.2 percent of the total number of households in The Gambia (table 3).

² Banjul, Kanifing, the coastal fringe and an area with a radius of 12 kilometers around Brikama in the West Coast Region (966 km²), is identified as peri-urban and known as the Greater Banjul Area (GBA).

Table 3: Ownership and population of sheep and goats by region

Region	No. of households reporting ownership	Sheep	No. of households reporting ownership	Goats
WCR	5 773	27 517	13 378	70 381
LRR	3 141	12 324	6 209	33 589
NBR	5 872	24 217	11 190	65 082
CRR	9 687	53 289	12 705	78 160
URR	5 524	26 591	7 441	55 666
Total	29 997	143 939	50 923	302 878

Source: 2011/2012 Agricultural Census

Pigs

The Agricultural Census estimates the pig population in The Gambia at 3 627 (table 4); but according to Animal Health and Production Services, the reported figure is a gross underestimation because the census did not cover Kanifing Municipality where the majority of the pig farmers are residing. There are an estimated 300 pig farms (back yard and commercial) with an estimated average flock size of 120 heads in Kanifing Municipal Council, thus bringing the total pig population to about 36 000. The realistic national pig population could be estimated at 42 384 heads. The main breed of pigs reared in the Gambia comprise crosses of the West African Dwarf Pig and the Landrace constituting about 70 percent of the population whilst the West African Dwarf Pig makes up the remaining 30 percent.

Table 4: Pig ownership and population by region

Region	WCR	LRR	NBR	CRR	URR	Total
Ownership (No)	444	95	74	119	21	753
Pig pop.	3 627	693	1 216	800	47	6 385

3.2.5. Yield per unit (dressed carcass) weight per species of animal and milk production per cow/goat/camel per day and per lactation

As indicated above, the traditional smallholder mixed farming system is the main source of meat and milk in the country. The offtake rates, dressed carcass weights and total meat production for cattle, sheep, goats and pigs are presented in table 5 below.

Table 5: Offtake rates, dressed carcass weights and total meat production

Species	Offtake Rate (%)	No.	Carcass weight (kg)	Estimated Quantity (Tonnes)
Cattle	11.9	47 418	104	4 931
Sheep	22.3	32 098	14	449
Goats	25.1	76 022	13	988
Pigs	50	21 192	55	1 166
Total				7 535

Average milk production per N'Dama cow is estimated at 1.2 litres/day with a total production of 415 litres over a lactation period of 346 days.

3.2.6. Total production of meat and milk from each farming system

The total production of meat and milk from the traditional mixed farming systems are estimated at 7 535 and 24 597 tonnes, respectively.

3.2.7. Meat and milk post-harvest losses

There are no data on post-harvest losses of milk and meat. The meat is generally sold immediately after slaughter as “hot” meat. The perishable nature of the product requires that unsold meat be stored at specific temperature overnight. However, most retailers at municipal markets lack cold storage facilities, thus losses could be incurred at this level. To minimize such losses, individual butchers where there is electricity supply, would store leftover meat in domestic freezers for sale the following day together with their fresh stock.

During the rainy season, milk remains at farms unsold probably due to lack of easy access to the market. According to the women milk collectors and processors of the Kiang West Dairy Cooperative, post-harvest losses could be as high as 60 percent during the rainy season coinciding with higher levels of milk production. Milk is stored and transported in recycled plastic containers which are difficult to clean and are potential sources of milk contamination. In addition, the high ambient temperatures (and the lack of cooling facilities) are conducive for bacterial growth. Losses along the marketing chain can therefore be high but there is no information on post-harvest losses at this level. There are no storage facilities for meat and milk at both the farm and marketing facilities. Within the prevailing production and marketing systems, the volumes of meat and milk produced are limited and are mainly disposed of on a day today basis.

3.2.8. Output storage capacity

Data not available

3.3. Inputs and factors for primary production

3.3.1. Type and quantities of inputs required

The critical inputs required for meat and milk production include animals, feed, water, veterinary drugs and vaccines.

Animals

The traditional smallholder mixed farming systems utilize trypanotolerant N'Dama cattle, Djallonke sheep, West African Dwarf Goats and Sahelian breeds and crosses for meat production. The pig breeders raise the West African Dwarf Pig, the Landrace and their crosses.

Feed types and quantities available for meat and milk production

Available feed resources for the ruminant animals meat and milk production include forages from rangelands – the main sources of forage for most of the year; crop residues (maize, millet, sorghum

stovers; rice straw and groundnuts) and crop by-products (millet, sorghum and rice bran, groundnut cake. The rangelands were estimated at 240 000 ha and are characterized by poor drainage, rocky topography and low soil fertility. The quantity and quality of the feed on rangelands is restricted during the dry season and cannot support optimal milk production but supplementary feeding of lactating cows is not practiced. Lactating cows however have access to crop residues after the harvest.

The quantities of the different crop residues produced will depend on the total area cultivated, inputs (such as fertilizers) as well as the amount of rainfall received. According to The 2011/2012 Agricultural Census, 347 592 hectares were put under crop production and the estimated quantities of crop residues produced are estimated at 397 805 tonnes of dry matter with early millet and groundnut hay contributing 182 353 and 79 665 tonnes (table 6). Cereal crop residues are normally grazed *in situ* leading to substantial losses through trampling and insect damage. Groundnut hay is the only crop residue collected because of its high feeding value and thriving market, both within The Gambia and neighbouring Senegal. Farmers use most of the hay stored on-farm to feed draught animals and for fattening rams for *Tabaski*. The total amount of feed dry matter required by the cattle and small ruminants for 360 days is estimated at 550 546 metric tonnes (table 7).

Table 6: Available feeds and quantities

Crops	Area Planted¹ (Ha)	Production (Dry Matter)² Tonnes	Available² Dry Matter
Early Millet	89 449	72 941	182 353
Late Millet	20 986	14 293	35 733
Sorghum	29 576	20 556	51 390
Maize	25 256	23 613	23 613
Upland Rice	20 138	15 228	13 705
Swamp rice	15 136	12 606	11 345
Groundnuts	110 924	83 858	79 665
Total			397 804
Groundnut cake		NA	NA
Rice bran		NA	NA
Rangelands	240 000	NA	NA

Source: 1: 2011/2012 Agricultural Census; 2: Author's calculations

Crop by-products are used as feeds by the meat and milk producers, including poultry farmers. The quantities generated are however not known. Primary industrial and on-farm processing of crops generate by products that are used as feed supplements. There are two industrial groundnut oil processing plants located in the Greater Banjul Area. Farmers are able to source the groundnut cake directly from the plants. The rice mills on the other hand are mainly located in Central River Region about 300 km from Banjul. These are mainly small mills of 1.5 metric tonnes capacity operated by either private individuals or groups. They are a source of rice bran which is a component of supplementary feeds for the intensive dairy production systems.

Table 7: Total amount of dry matter required by cattle, sheep and goats

	Population	Conversion Factor	No. of Animal Units	Dry Matter Requirements/day	Dry Matter Requirements/year
Cattle	398 472	0.5	199 236	7.5	537 937
Sheep	143 939	0.1	14 394	0.8	3 886
Goats	302 78	0.1	3 088	0.8	8 723
Total					55 046

3.3.2. Purchase prices of inputs per type

Feeds

The major feed resources that are traded are indicated in table 8. Groundnut hay and rice bran prices were obtained from the retailers in the Greater Banjul Area; these prices are constant throughout the year. The retailers indicated that the farm gate price of groundnut hay maybe about 30 to 40 percent cheaper immediately after the groundnut harvest in January/February.

Table 8: Prices per metric tonne of the major feed resources Dalasis & US\$

Regions						
Item	Upper River	Central River-North	Central River-South	North Bank	Lower River	Kanifing Municipal Council
Groundnut hay	3 000 (\$93)	6 250 (\$169)	3 300 (\$90)	4 200 (\$113)	4 200 (\$113)	10 400 (\$282)
Rice bran	na	na	5,000 (47)	na	na	
Groundnut cake	na	na	na	na	na	5 300 (\$165)

Groundnut hay: transport cost to GBA = D833 (\$23)/tonne

The average national price of metric tonne of groundnut hay and its transport are respectively about \$177 and \$23

Veterinary drugs and vaccines and purchase prices

The vaccines, number of doses and purchase prices required for the different species are indicated in table 9 below:

Table 9: Vaccines and purchase prices

Species	Vaccine	No. of doses	Purchase prices (Dalasi)
Cattle	CBPP	400 000	86 486
	Haemorrhagic Septicemia	100 000	13 514
	Black Quarter	100 000	13 541
Sheep & Goats	Peste des Petit Ruminants	500 000	67 568
	Pasteurellosis	500 000	67 568

3.3.3. Seasonality in prices and quantities of the main inputs

There are no seasonal price variations of the major feed resources, i.e. groundnut hay, rice bran and groundnut cake. At farm gate, the prices and quantities of groundnut hay available; groundnut hay is more abundant immediately after the harvest in January/February and prices are 30 to 40 percent cheaper.

3.3.4. Stocking costs of inputs

Data not available

3.3.5. Transportation cost of inputs from various locations

Transport cost for groundnut hay from various locations to the Greater Banjul Area is estimated at about US\$23.

3.4. Processing stages up to the final commodity

3.4.1. Meat processing stages up to the final commodity

Slaughtering of cattle, sheep and goat is conducted at the abattoirs, mini-abattoirs and slaughter slabs. The main slaughter facility is the Abuko Central Abattoir. The Kombo Meat Factory processes meat and meat products like special cuts, sausages, and smoked chicken. They source live animals from the dealers and slaughter at the Abuko abattoir. Their main clients are super markets, hotels and up market consumers.

3.4.2. Milk processing stages up to the final commodity

Three types of actors undertake milk processing in The Gambia: (i) family of milk producers and independent traders/vendors (using traditional processing methods), (ii) farmer cooperative societies (using improved technologies), and (iii) a medium scale milk processor (using a modern processing plant).

Family of milk producers and independent traders/vendors: The herdsmen and their families and independent traders/vendors play a major role in milk processing and marketing of milk products. Fermented milk (sour milk) is the most popular dairy product consumed in The Gambia. The quantity of milk processed into fermented milk is not known.

Dairy cooperative societies: There are 8 dairy cooperative societies involved in milk processing and marketing in The Gambia – 6 are located in Central River Region and 2 in Lower River Region (these units are supported by Sustainable Management of Globally Significant Endemic Ruminant Livestock of West Africa Project (PROGEBE). The women produce mainly yoghurt and ghee using traditional utensils with improved hygienic manufacturing practices.

Medium scale milk processor: The Kombo Dairy Farm (KDF) in 2008 installed a milk processing plant with a total capacity of 500 litres per hour. The company packages fermented milk and yoghurt in 0.25 and 0.5 plastic sachets, and 1 and 5 litre plastic containers and marketing is through supermarkets and mini markets.

1.5 Geographical location and number of value chain agents/ actors

Value chain agents/actors include the primary producers of meat and milk, input suppliers - veterinary products and feed suppliers, livestock traders, butchers, food vendors, and the meat and milk processors. The number of agents / actors and their geographical locations are shown in Table 10 below. The number of primary producers was obtained from the 2011/2012 Agricultural Census which did not cover the Kanifing Municipality and Banjul thus the number of producers in these areas are not captured. The figures for livestock traders and butchers were obtained from Gambia Livestock Marketing Agency and constitute the total numbers nationwide but not by geographical location. There are no official figures regarding agents/actors engaged in traditional processing of milk; milk processors with appropriate processing and packaging facilities are limited to four.

Table 10: Geographical location and number of value chain agents/actors

Agents/Actors	Regions Kanifing	West Coast	North Bank	Lower River	Central River- South	Central River- North	Upper River	Total
Primary Producers								
Cattle meat & milk	na	4 490	7 775	3 431	10 587	4 670		30 987
Sheep	na	5 773	5 872	3 141	9 687	5 524		29 997
Goats	na	13 378	11 190	6 209	12 705	7 441		50 923
Pigs	na	444	74	95	119	21		753
Input suppliers								
Veterinary products	2	0	0	0	1	0	0	2
Feeds	na	na	na	na	na	na	na	
Livestock traders	na	na	na	na	na	na	na	302
Butchers	na	na	na	na	na	na	na	264
Food vendors	na	na	na	na	na	na	na	
Processors								
Meat processors	1	0	0	0	0	0	0	1
Milk processors	1	0	0	1	1	1		4

3.6 Amount of land and other natural resources allocated to the meat and milk value chains

The grazing areas / rangelands, estimated at 240 000 hectares, are the main sources of forage for most of the year. The grazing areas / rangelands, categorized into upland and lowland land cover / land use types, are common property resources with open, uncontrolled access to both sedentary and transhumance livestock herders. In most parts of the country cattle tracks have been encroached on limiting access to grazing and watering points. Conflicts over intrusions into crop lands, including rice fields, and vegetable gardens are more frequent than conflicts over grazing lands. Lack of proper identification of the tracks and the current expansion of crop production are contributory factors to encroachment.

3.7 Competition over the utilization of land or other natural resources

Gambian farmers rely on the land and other natural resources for their livelihoods. The accelerating degradation of the natural resource base, i.e. loss of soil fertility and deforestation, and the extension of crop production due to human population increase, have resulted in increased competition over land and other natural resource uses. The extension of crop production in the upland and low land grazing areas has reduced the availability of natural grazing areas and intensified conflicts between livestock owners and crop farmers. A further challenge is the encroachment by crop farmers on cattle tracks which makes it difficult for cattle to access grazing areas and watering points.

3.8 Impact of the meat and milk value chains on the environment

Impacts of milk and meat value chains on the environment: The FAO estimates that the livestock sector is responsible for 18 percent of greenhouse gas emissions. Environmental concerns in The Gambia however revolve around deforestation, water pollution and climate hazards. The negative and positive environment impacts of the milk and meat value chains are summarized below.

Negative environmental impacts of milk and meat production and processing

- Methane emission from animals (greenhouse gas emissions per unit of milk output are higher in extensive than intensive livestock systems)
- Overgrazing leading to decreases in productivity of grasslands, loss of vegetation and changes in floristic composition and soil erosion
- Trampling which affects soil structure
- Transfer of nutrients from forage producing areas to use sites (rangelands and crop fields – crop residues)
- Depletion of underground water resources (dairy animals consume large amounts of water; large amount also required for cleaning)
- Contamination (dung and urine) of underground water resources – the aquifer is shallow in the Greater Banjul
- Inefficient collection and processing of waste (blood, rumen content, hooves and horns) generated from slaughter facilities ultimately cause environment pollution.

Positive environmental impacts of milk and meat production and processing

- Use of crop residues and by-products as animal feed.
- Use of manure and feed refusals for later use in crop fields to improve soil fertility. Benefits include enhanced soil fertility and a reduction in the use of chemical fertilisers and the associated risks of environmental pollution.
- Production and value addition potential

The potentials to increase milk and meat production and value addition are based on the opportunities offered by existing production and processing technologies.

Meat

A SWOT analysis of the meat value chain showed that possibilities exist to increase domestic production through improved access to critical inputs and support services including quality feeds,

disease control, and marketing services. Production traits (high daily live weight gains) of indigenous cattle and small ruminants can be improved through breeding and selection within the existing population. The high market demand for meat in the Greater Banjul due to population growth, urbanization and growth of tourism and hospitality industry is an opportunity to increase production and value addition.

Milk

The objective of the Agriculture and Natural Resources Policy (2009-2015) is to increase milk production by 25 percent by 2015 through support to the development of an efficient milk value chain. The SWOT analysis of the milk value chain showed that cattle population is adapted to the environment and that the cost of milk production is low due to the extensive grazing system employed under the traditional production system. The possibilities of increasing production include: improving animal production and productivity levels through improved input provisions – veterinary care and provision of quality feed; breeding and selection within the existing population and cross-breeding with exotic breeds. The high market demand for milk and milk products in the Greater Banjul Area owing to population growth, urbanization and growth of tourism and hospitality industry is an opportunity to increase production. Nevertheless, it would necessary to invest in milk collection, processing and packaging infrastructure and quality control systems in order to take advantage of these opportunities.

3.9 Number of value chain actors by component (chain)

The number of value chain actors by component is indicated in table 11 below.

Table 11: Number of value chain actor by component

Value chain Actors	Number
Cattle meat and milk producers	30 987
Sheep/mutton producers	29 997
Goats/ goat meat producers	50 923
Pigs / pork producers	753
Suppliers of veterinary drugs and vaccines	2
Feed suppliers	NA
livestock traders	302
Butchers	264
Food vendors	NA
Meat processors	1
Milk processors	4

3.10 Current and potential (future) domestic demand of meat and milk

Local production and imports constitute the supply for meat and milk. Production estimates and imports for 2012 were used to project the trends up to 2017 (Tables 12 and 13).

Meat

Meat is imported into The Gambia to contribute to domestic demand. High quality meats are imported for the supermarket and hotel trades. In 2012, 25 952 tonnes of meat products were imported (Table 12). Poultry meat constituted the bulk of the imported meat (23 616 tonnes, or 91 percent). Beef, sheep and goat meat constituted 7 and 3 percent, respectively. Meat production estimates include beef, mutton, goat meat, pork and chicken meat from the traditional and commercial sectors.

Table 12: Supply and demand of meat

Rubrique	2012	2013	2014	2015	2016	2017
Production ¹	8 799	9 239	9 701	10 380	11 107	11 995
Imports	25 952	29 066	32 554	3 581	39 391	42 936
Demand	34 751	38 305	42 255	4 619	50 497	54 931
Deficit	17 153	19 827	22 853	2 543	28 284	30 941
% Deficit	49	52	54	55	56	56

Milk

In 2012, 33 210 tonnes of milk and milk products was imported (table 13). The main dairy products imported were milk powder, UHT milk, flavoured milk, condensed/evaporated milk, yoghurt, butter and cheese. The basic data on milk imports available is not desegregated, thus it was not possible to convert the processed milk products to liquid milk equivalents.

Table 13: Supply and demand of milk

Rubrique	2012	2013	2014	2015	2016	2017
Production	24 597	25 827	27 118	29 016	31 048	33 531
Imports	33 210	37 195	41 659	45 824	50 407	54 944
Demand	57 807	63 022	68 777	74 841	81 455	88 475
Deficit	8 613	11 368	14.54	16 808	19 359	21 412
Percent Deficit	15	18	21	22	24	24

3.11 Specific features of products, including product differentiation when targeting different types of clients

Demand for meat and milk and their products in rural areas is low because of a low per capita income situation. For meat the product range is limited to meat and bone, steak and offal. For milk the range comprises raw, fermented milk and ghee.

Rising urban population with increasing income and consequently increased purchasing power is a potential source of demand for value added milk and meat products. These potential consumers would require high quality and diverse range of products many of which are not produced locally, e.g. sausages, canned meat, special meat cuts, smoked products, cheese, butter, flavoured yoghurt,

pasteurized milk, powdered milk. The hotel and hospitality industry in the Greater Banjul Area would also require the same range of meat and milk products.

3.12 The products capacity to fulfill international requirements (sanitary and other standards)

With the current low domestic production and the lack of significant value addition in terms of meat and dairy products there is no export of meat and milk and their products from The Gambia. However potential barriers to export include the lack of an articulated meat and dairy development policy and attendant livestock related trade policy; an outdated Diseases of Animals Act, lack of standards, quality assurance framework and modern regulations, and the absence of accredited diagnostic and food testing laboratories. In addition, processing, transportation and marketing infrastructure are not well developed and organized and there are no established national standards and regulations for their management and control.

3.13 Urban rural relationships

The Gambia is undergoing a process of rapid urbanization; currently about 56 percent of the population lives in urban settlements of the Greater Banjul Area. There are significant rural-urban links in The Gambia with food and cash flows occurring between family members in urban and rural areas. Foods produced in the rural areas are significant sources of income in the urban informal sector as urban areas are important sources of demand for meat and milk.

3.14 Synergies with other activities

In the mixed crop/livestock production systems, crops and livestock interact to create a synergy. Crop residues are used for animal feed, and the main feeding method of cereal crop residues is *in situ* grazing on harvested fields. As manure is an important soil fertility amendment in Gambian farming systems, farmers consider manure dropped directly on arable fields to be an important input to crop production. Nutrients are also captured from rangelands and transported to crop fields in the form of manure.

3.15 Role in local production

Livestock farming is an important agricultural activity in the country. The sub-sector's contribution to the economy is not limited to its share in the total GDP. Livestock contribute to the national food supply in the form of milk and meat and is a source of income and employment, contribute to crop farming as a source of manure and draught power and fulfils cultural roles in livestock farming communities.

4. INFRASTRUCTURE AND OTHER SUPPORT SERVICES

In general there is a lack of appropriate facilities and equipment along the meat and milk value chains.

4.1. Transport

There are no appropriately designed transports for live animals and animal products including frozen products. General purpose commercial vehicles are used for transportation of live animals and animal products.

4.2. Packaging and stocking costs of output

There is no packaging of meat products, apart from poultry in The Gambia. Most of the milk is marketed through the informal sector with the use of measuring utensils, mainly cups and recycled containers ranging from 100 ml to 5 litres. With the emergence of the women's group milk processing centres and the Kombo Dairy Farm, the use of plastic packaging materials is being employed. These packaging materials are all imported with a significant number coming from Senegal. The packaging costs according to the processors interviewed constitute about 15 percent of their input costs.

4.3. Equipment, required investment, facilities and related depreciation

The required investments for the facilities and equipment and their related depreciation over a 10 year period are indicated in table 14.

Table 14: Facilities and equipment and related depreciation (10 percent/ year)

Facilities and equipment	Unit cost (US\$)	Years									
		1	2	3	4	5	6	7	8	9	10
Upgrading of live animal markets (lomos)	54 054	5 405	4 865	4 378	3,941	3 546	3 192	2 873	2 585	2,327	2 094
Establish pig slaughter-house in the GBA	100 000	10 000	9 000	8 100	7 290	6 561	5 905	5 314	4 783	4 305	3 874
Upgrading slaughter facilities	94 595	9 460	8 514	7 662	6 896	6 206	5 586	5 027	4 524	4 072	3 665
Construct milk processing centres	35 135	3 514	3 162	2 846	2 561	2 305	2 075	1 867	1 680	1 512	1 361
Equipment & materials in milk processing centres	13 514	1 351	1 216	1 095	985	887	798	718	646	582	524
Solar system for processing centres	18 919	1 892	1 703	1 532	1 379	1 241	1 117	1 005	905	814	733
Construct MCCs	67 568	6 757	6 081	5 473	4 926	4 433	3 990	3 591	3 232	2 909	2 618
Equipment and materials & MCCs	8 108	811	730	657	591	532	479	431	388	349	314

4.4. Extension and technical support

Responsibility for the transfer of information on livestock production to farmers is the responsibility of the Regional Directorates of the Department of Agriculture which are biased towards the delivery of crop extension messages; as a result livestock service delivery, including veterinary services, has over the years been poor. The Animal Health and Production Services (AHPS) is the arm of the Department of Agriculture responsible for the provision of technical advice on all matters related to animal health and production. It is divided into three units - public health, animal production, epidemiology and disease control, including a laboratory. Apart from the lack of qualified staff, the main constraints of Animal Health and Production Services are related to the organizational structure of the Department of Agriculture.

Under the current structure the roles and responsibilities of the services *vis-a-vis* the regions are not clearly defined, there is no clear chain of command from the services to the region, and it has limited budget to implement field-based activities. The structure does not allow it to do routine extension work. Furthermore, it does not have staff in the field to conduct active disease surveillance thus the disease reporting system that was developed over the years has broken down. The government has given a directive for the creation of a new department that will be responsible for animal health and production, including extension.

Research services for the milk and meat value chains are provided by the National Agricultural Research Institute (NARI) and the International Trypanotolerance Centre (ITC). NARI was established in 1993 to conduct adaptive and applied research on crops, livestock, forestry, fisheries, and other natural resources to provide technological solutions for producers and to inform policymakers on options for sustainably increasing agricultural productivity, while protecting the environment and natural resource base. The capacity of NARI to conduct livestock research is limited as it currently has only two staff with background in livestock research.

The ITC is an autonomous, non-profit-oriented regional livestock-based agricultural research institution. Its initial objective was to research and multiply the unique trypanotolerant N'Dama cattle. The centre's objective was expanded to focus on the "formulation, implementation and introduction of sustainable socio-economically and environmentally acceptable integrated packages at farmer level, for improved livestock health, production and exploitation." ITC has worked on various issues revolving around two key livestock production systems, i.e. low-input and market-oriented systems and their linkages and overlaps in collaboration with National Agricultural Research Systems in partner countries, The Gambia, Guinea Bissau, Guinea Conakry, Senegal and Sierra Leone. The centre initiated the cross breeding of the N'Dama with exotic temperate breeds (Jersey and Holstein) for increased milk production in the low tsetse challenge areas of The Gambia. The F1s produced were loaned to interested farmers mainly in the West Coast Region. The Centre is currently undergoing a transformation process with the ultimate aim of it being a specialized livestock research institution of ECOWAS; it is now managed by NARI.

Other technical support services include the provision of market information. The Gambia Market Information System (GAMIS), a public/private partnership framework, is jointly managed by the Planning Services Unit of the Department of Agriculture. The unit is however under-funded and requires both material and financial support to function effectively.

Financial services, particularly credit, are not easily accessible to small and medium scale producers. The principal providers of finance are the twelve commercial banks and micro-finance institutions (MFIs) which, because of high interest rates, are not preferential sources of finance for the dairy and meat industries. The key MFIs are the Village Savings and Credit Associations (VISACAs); the National Association of Credit Unions (NACCUG); the Gambia Women's Finance Association (GAWFA); the Gambia Microfinance Savings Company (GAMSAVINGS); the Social Development Fund (SDF); and Reliance Financial Services (the distribution of the MFIs is shown in table 15 below)

Table 15: Percent distribution of Micro Finance Institutions

Regions	VISACAs	Credit Union	Both	Others
WCR	41.9	41.9	4.5	9.7
LRR	81.6	0	6.5	18.2
NBR	30.8	15.4	0	46.1
CRR-N	62.5	12.5	7.7	25
CRR-S	92.9	7.1	0	0
URR	36.4	27.3	9.1	27.3

Source: 2011/2012 Agricultural Census

4.5. Quality control and certification

The GFSQA is the sole competent authority for food safety and quality control. Currently, staff of the Animal Health and Production Services is responsible for meat inspection at slaughter facilities.

4.6. Other infrastructure include

Grazing land, stock routes and watering facilities

In most parts of the country, grazing lands are not demarcated and watering points are limited. Cattle tracks have been encroached on limiting access to grazing and watering points where they are available. Lack of proper identification of the tracks and the current expansion of crop production are contributory factors to encroachment. There is thus a need to establish watering facilities, demarcated grazing areas and stock routes.

Live animal markets (lumos)

Live animal markets (lumos³) operate on a weekly basis and are located mostly in villages close to the border areas with Senegal. The location of these markets is premised on the significant cross border trade in livestock between the two countries and by extension with major livestock exporting countries namely Mali and Mauritania. These markets lack appropriate infrastructure like fencing, animal sheds, water and electricity. Livestock markets need to be upgraded to include permanent fencing, provision of sheds, weighing scales, lighting, watering and feeding facilities.

³ Lumos are open general markets found in the rural areas which are held weekly. They also serve as secondary livestock markets.

Slaughter facilities

Slaughtering of cattle, sheep and goat is conducted at the abattoirs, mini-abattoirs and slaughter slabs. The slaughter slabs are basic open slaughtering facilities with concrete floors and no roofs. They are either managed by Local Government Authorities (LGAs) or butcher groups. The hygienic conditions are predominantly poor and don't meet the required sanitary and hygienic standards. There are two abattoirs, the Central Abattoir at Abuko and the Banjul abattoir. There is a need to upgrade the slaughtering facilities and their management systems from the village slaughter slabs to the main regional abattoirs and the central abattoir at Abuko to be compliant with the national food safety regulations. Currently, none of these facilities are statutorily registered and/or licensed for official control. This situation shall be remedied with the coming into operation of The GFSQA. None of them has attained international certification.

Milk collection and processing facilities

There is a need to provide appropriate milk collection centres, milk collection cans and storage facilities to reduce spoilage and post-harvest losses, and where feasible, establish linkages with processing and packaging facilities. Women's' groups in the traditional systems need to be supported with appropriate small-scale milk processing units equipped with utensils, cold storage facilities, packaging materials and vending outlets, particularly in municipal markets and *lumos*.

5. MARKETING, TRADE AND PRICES

5.1. Produced and traded quantities of meat and milk

The quantities of meat and milk produced and traded are presented in table 16 below:

Table 16: Quantity of meat and milk traded

Item (quantity in tonnes)	Species				Total
	Cattle	Sheep	Goats	Pigs	
Meat	4 931	449	988	1 166	7 534
Milk	18 448	0	0	0	18 448

5.2 Home consumption and marketed shares of the produced goods, if any

On-farm consumption of milk is estimated at about 30 percent during the dry season and 20 percent during the rainy season with a yearly average 25 percent (6 149 tonnes). The remaining 75 percent (18 448 tonnes) is marketed. Data on home consumption of meat from on-farm slaughter is not available.

5.3 Producer price of the commodity at various locations

Producer prices of live animals for slaughter depend on the weight and body condition of the animal. Body weight and condition of the animals are visually assessed by producers and traders, leading to variable outcomes of weights, quality appreciation and hence the monetary value of the animals. The Gambia Livestock Marketing Agency purchases live cattle at D55/kg (\$1.5/kg) live weight. Neither a grading system nor scales to accurately determine the weight of the animal exists in the livestock markets.

The majority of the sheep slaughtered are sourced from Senegal, whilst the goats are exclusively sourced from The Gambia. Sheep are scarce in the market during the wet season. Sheep sales in the markets are heaviest during the religious feast of *Tabaski* requiring the slaughter of a ram. Goat sales are heaviest during the dry season (January-June). The average prices for small ruminants are presented in table 17.

Table 17: Average prices of sheep and goats

Species	Regions						Mean (Dalasi)	US\$
	West Coast	Lower River	North Bank	Central River-North	Central River-South	Upper River		
Sheep	2 300	2 200	2 250	2 300	1 500	1 700	2 042	55
Goats	2 100	1 200	1 200	1 200	1 200	1, 00	1 367	37

Source: LHDP Market study Report; Field survey, 2012

5.4 Consumer price of the commodity at various locations

Milk

The consumer prices of milk by region are presented in Table 18. According to key informants contacted in the regions, there is no seasonal variation in prices.

Table 18: Consumer prices of milk by region

Price	Regions				
	West Coast	Lower River	North Bank	Central River	Upper River
Price/litre (Dalasis)	50	20	30	20	20
Price/litre (US\$)	1.35	0.54	0.81	0.54	0.54

Meat

Consumer price of meat is determined by the GLMA and is presented in table 19. Butchers operating in the local markets sell meat by weight; most of the meat sold is generally a mixture of meat with bones and some offal. The amount of offal is highly variable per kilo. Prices are generally higher in the Banjul and Kanifing Municipality. The average price for meat and bone, steak and mutton are D 78 (US\$2.4), D 93 (US\$2.9) and D100 (US\$3.1). The largest super market in The Gambia, Kairaba (located in the heart of the business centre along the busy Kairaba Avenue in the Kanifing Municipal Council) sells steak and meat and bone at D210 (\$6.6) and D135 (\$4.2) respectively.

Table 19: Consumer prices of ruminant meat (D and US\$)

Commodity		Regions							
		Banjul/Kanifing Municipality	West Coast	Lower River	North Bank	Central River-South	Central River North	Upper River	Mean (Dalasis)
Meat & Bone	125	120	90	100	80	100	80	98	2.6
Steak	150	140	110	120	100	120	100	114	3.1
Mutton	150	125	100	120	100	15	125	115	3.1

Source: Animal Health and Production Services (2013)

5.5 Location of the main markets in the regions and/or at national level

There are 27 major livestock markets in the country (table 20). Except for the 3 located in the urban areas, namely Abuko, Banjul and Brikama which operate on daily basis, the rest are all weekly markets located mostly in villages close to the border areas with Senegal. The location of these markets is premised on the significant cross border trade in livestock between the two countries and by extension with major livestock exporting countries namely Mali and Mauritania. Central River Region has the highest number of weekly livestock markets.

Table 20: Regional distribution of livestock markets

Central Region	River	Upper Region	River	North Region	Bank	Lower Region	River	West Region	Coast	Banjul Council	City
Brikamaba		Gambisara Lamoi		Ndungu Kebe		Bureng		Brikama		Banjul	
Fula Bantang		Dingiri		Fass Choi	Njaga	Kwinella		-		-	
Wassu		Sabi		Jamagen		-		-		-	
Nyanga Bantang		Farato		Kerr Jain		-		-		-	
Sami Karantaba		Sare Mansali		Kerr Pateh		-		-		-	
Same Tenda		Sare Bojo		Farafeni		-		-		-	
Kaur		Gambisara		Ngain sanjal		-		-		-	
Mamut Fana		Sare Ngai		-		-		-		-	
Jareng		-		-		-		-		-	
Kudang		-		-		-		-		-	

5.6 Numbers of the actual and potential consumers in the relevant destination area

The demand for meat and milk in The Gambia in 2014 was estimated at 38 304 and 68 777 tonnes, respectively. The greatest demand would be from the Greater Banjul Area with its higher population concentration with relatively higher incomes and brisk tourist and restaurant trade. Consequently, the major proportion of the livestock/livestock products marketing (including meat imports) are geared to servicing the demand in this area. According to the 2003 Population and Housing Census, about 57 percent (696 000) of the urban population lives in Banjul, Kanifing Municipality and the West Coast Region and is expected to grow by 3.6 percent over the next few years. The overall earnings of people in the Greater Banjul Area are higher than the rest of the country. This is due to the fact that the better paid jobs like finance, insurance, tourism, hotels and restaurants can be found in the Greater Banjul Area.

5.7 Seasonality in prices and quantities of the output

Sheep sales in the markets are heaviest during the religious feast of *Tabaski* requiring the slaughter of a ram. Goat sales are heaviest during the dry season (January-June). The average prices for small ruminants are presented in Table 17. With regards to cattle, average sales prices are reported to be lowest in September and October. There are no seasonal variations in the prices of beef, mutton and goat meat.

5.8 Socio-economic features of current and potential customers, including spending capacities

The Gambia is one of the poorest countries in the world. It is ranked 168 out of 187 in the United Nations Development Programme Human Development Index for the year 2011. Using the US\$1.25 threshold per person per day, poverty was estimated at 48.4 percent. The incidence of poverty is higher in the rural than in urban areas. A key underlying cause of poverty in The Gambia is the relatively high unemployment and underemployment rates, particularly among women and youth.

Unemployment amongst the youths is estimated at over 40% and 70% of women are engaged in low productivity rural subsistence agriculture.

In the rural areas the effective demand for meat and milk and their products are constrained by low per capita income. As indicated above, about 57 percent of the national population lives in the Greater Banjul Area. The overall earnings of people in the main consumer market, the Greater Banjul Area, are higher than the rest of the country. This is due to the fact that the better paid jobs like finance, insurance, tourism, hotels and restaurants can be found in the Greater Banjul Area.

5.9 The degree of competitiveness (existence of monopolies or otherwise)

Globalization has forced market liberalization in The Gambia and this has resulted in the dumping of heavily subsidized products for example poultry, meat, eggs and milk. The domestic products therefore face stiff price competition from the imports.

5.10 Control over prices (how different prices are set and controlled)

The Government of The Gambia pursues a liberal market economy and prices are determined by market forces. However, it has not been uncommon for government to institute price ceilings on the purchase of cattle and small ruminants to make meat available to the average local consumer. This generally makes the margin to cover costs of abattoir services, procurement, transportation and sales too tight for a reasonable profit and often leads to intermittent shortages in meat supplies with much higher prices.

5.11 Wholesale and retail distribution

Meat retailing

The retailing of meat is conducted by butchers in the municipal markets and butcher shops and kiosks. The butchers sell beef, mutton and goat meat in both urban and rural markets. The meat is generally sold immediately after slaughter as “hot” meat. The GLMA has 264 butchers on its register. Insufficient capital to purchase live animals for slaughter; sub-standard nature of the marketing infrastructure including slaughtering, processing and handling facilities (e.g., lack of water and, cold storage facilities); lack of training in meat handling, hygiene, cutting techniques and grading are serious constraints to the provision of quality meat. In addition, there four super and mini-markets in the Greater Banjul Area GBA providing meat to more quality conscious consumers.

Afra (roast meat) shops/Food vendors. Food vendors in the urban areas normally purchase sheep and goats from the terminal markets, whilst those in the major towns in the rural areas buy either from traders who bring their animals to town, or they travel to the *lomos* to buy themselves. Constraints confronting them include insufficient capital to purchase live animals for slaughter, sub-standard nature of the marketing infrastructure including slaughtering and processing.

Milk retailing

Milk retailing is conducted in the informal and formal market.

Informal market: Traditional milk producers sell both raw and sour milk to individual customers, milk collectors (mobile/itinerant traders), and directly to market vendors. Collectors usually sell raw and sour milk to market vendors and directly to consumers, and provide a vital link between the market

and smallholder producers in areas with poor market access. Vendors sell dairy products along the main roads, open spaces in car parks or in the market places.

Formal Market: Value added products, including both local and imported dairy products are sold in the formal market, i.e. supermarkets, mini markets and other outlets. Fermented milk, yoghurt and pasteurized milk are the main locally produced milk products, whilst powdered milk, UHT milk, flavoured milk, condensed/evaporated milk, yoghurt, butter and cheese are imported. Locally produced yoghurt is one of the milk products commonly purchased especially in peri-urban areas. Only small quantities are produced from locally produced whole milk the vast majority of the yoghurt found in the market is produced from imported powdered milk. It is usually presented in 0.350 litre- plastic cups.

5.12 International prices and trends

The FAO Food Price Index, which measures monthly changes in international prices of a basket of meat, dairy, cereals, oils and fats, and sugar, averaged 215.5 points in April 2013, up 2 points (1.0 percent) from its revised March value of 213.2 points (FAO, 2013). The April increase was driven almost exclusively by a sharp rise in dairy quotations, as meat prices rose marginally while those of the other food commodities fell. Global meat production in 2012 grew by less than 2 percent to 302 tonnes (FAO, 2012). The Meat Price Index averaged 178.7 points in April, a level which it has maintained since the latter part of 2012, moving within the narrow band of 177 – 179. Nevertheless, meat prices overall remain high by historical standards: from the early part of 2011, the index has stayed above its previous peak of 170 reached in mid-2008. Quotations for the different types of meat showed some variation in April, with poultry and pork rising by 1 percent and 3 percent respectively, despite a limited reduction in feed prices, and those of ovine meat and beef falling slightly. Global milk production in 2012 was estimated at 759.6 million tonnes. The Dairy Price Index averaged 258.8 points in April 2013, a sharp rise of nearly 34 points (14.9 percent) from March 2013. The main cause of the price surge seen in recent months is a steep decline in New Zealand's milk production.

5.13 Balance of trade

The Gambia's main trading partners are the European Union and the Economic Commission of West African States (ECOWAS). Other trading partners include the United States, China and Russia. Exports are dominated by groundnuts, which account for 60 percent of total locally produced exports. The Gambia is a net importer of food. Essential food commodities imported include rice, flour, sugar, vegetable oil, milk and milk products and poultry meat and eggs. Although exports, including re-exports (which account for 80 percent of goods exports), were estimated to have increased by 1 percent in 2011 (10.4 percent of GDP), imports were estimated to have risen at an even faster rate of 6.1 percent (34.7 percent of GDP), with food and fuel imports accounting for the bulk of the increase. The trade deficit is greater for milk and milk products.

5.14 The current and potential foreign competitors

The current and potential foreign competitors to Gambian products include suppliers of milk and other dairy products from Senegal and the European Union. Imports of these products will continue as current national production cannot meet both the demand and product range desired by

consumers, mainly from the growing urban population and the hotel and hospitality industry. Both value chains *vis-a-vis* imports are not competitive in terms of pricing, quality and product range. Under the trade policy, there operates a free market environment in The Gambia. At the inception of the Gambia Livestock Marketing Agency, attempts were made to control the price of cattle, beef and mutton but livestock dealers and butchers did not comply. Currently, prices are set by the operators themselves based on market forces

6. GOVERNANCE AND INSTITUTIONAL ARRANGEMENTS

6.1 The organization and interactions among the different value chain actors in vertical integration processes (synergies, actual or potential conflicts etc.)

The milk value chain is dominated by smallscale farmers operating an integrated crop/livestock production system. There are a few commercial dairy farms operating in the Greater Banjul Area but their impact on milk production is limited. Producers/farmers in the traditional sector and their families participate in milk production, processing and marketing. Milk collectors provide a vital link between the market and smallholder producers and milk vendors. The vendors who are usually women, obtain their milk either from collectors or directly from the producers, some from both of them. The various operations in the supply chain from producer to the collectors to the vendors are based on trust and mutual understanding.

The cattle and small ruminant meat chains like the milk value chain, are also dominated by smallscale producers operating mixed crop/livestock production systems. Producers' interaction with livestock dealers occur either on-farm or at the local weekly markets. In most cases, the animals are transported to terminal markets in urban areas (Abuko and Brikama) adjacent to the main abattoirs (Abuko and Banjul). The animals are then sold or loaned to butchers who slaughter them at the abattoirs and the meat transported to their premises for sale to other butchers or consumers. Nearly all of the marketing chain operations are conducted on a credit basis. This results in the tendency for one stage in the marketing chain to delay payment to a previous stage until it has the product for the next stage. Thus, dealers have to wait until butchers have sold meat until they are paid, and in turn, dealers often delay payment to producers until they have been paid by butchers. Supporting actors who facilitate the activities of the primary actors in the milk and meat value chains include animal feed suppliers, veterinary service providers and research and extension service providers' and in some cases financial services.

6.2 Existence of association/cooperatives and their strength

A number of Farmers' Organizations (FOs) and other value-chain associations are active in the livestock sector (table 21). The oldest organizations are the Livestock Owners' Associations (LOAs) which were formed in the early 1980s mainly to promote primary animal health care through the provision of dewormers, acaricides and mineral licks to members. Eventually, they became involved in grazing land and watering facilities management. All LOAs are dysfunctional except that of the West Coast Region. However, the GLMA has taken the initiative to revitalize them. Other value-chain associations include: Sheep and Goat Breeding and Fattening Association, Gambia Indigenous Livestock Multiplier Association, Pig Farmers Association; Livestock Dealers Association, Butchers Association and dairy cooperatives.

Table 21: Farmer Associations active in the livestock sector

Name of association/organization	Area of activities	Name & position of the person of contact	Address
Livestock Owners Association	Advocacy, sensitization, prevention of cattle rustling.	Bolong Sanneh, President	c/o Animal Health and Production Services Unit, Abuko
Sheep and Goat Breeding and Fattening Association	Advocacy, sensitization, organization of village ram fattening schemes	Jun Bah, President	c/o Animal Health and Production Services, Abuko
The Gambia Indigenous Livestock Multiplier Association	Advocacy, sensitization, breeding and distribution of selected trypanotolerant N'Dama bulls, and B'jallonke rams.	Omar Nget, President	c/o Animal Health and Production Services, Abuko
The Pig Farmers Association	Advocacy, sensitization, breeding, fattening and marketing.	Saku Manga, President	c/o Animal Health and Production Services, Abuko
The Livestock Dealers Association	Advocacy, sensitization, buying of slaughter stock from neighbouring countries and local farmers and supply to butchers, manage livestock markets	Babou Ndow, President	c/o Gambia Livestock Marketing Agency, Abuko
The Butchers' Association	Advocacy, sensitization, selection of butchers for training by GLMA and projects	Alhagie Buba Gaye, President	c/o Gambia Livestock Marketing Agency, Abuko
Dairy Cooperatives	Advocacy, sensitization, manage mini dairy plants	Mama Selly Sanyang, President	c/o PROGEBE, Abuko

The key strengths of the FOs are that they have guiding constitutions, are registered with the Attorney General's Chambers, and are recognized by the government. Their weakness include: poor governance; limited financial resources and funding sources; lack of skills in leadership, resource mobilization, advocacy and lobbying; poor and limited communication systems; limited programmes on the ground; lack of operational secretariats; high illiteracy levels among the membership; lack of collaboration and linkages among the FOs; low level of commitment and ownership by members; lack of strategic plans and programmes.

The Government is however committed to encouraging and supporting the FOs to achieve their goals and objectives. In order to tap their potentials, there is a need to conduct an organizational assessment of the FOs in order to profile them, identify their capacities, and develop strategies for their strengthening. In addition, it is suggested that vertical integration of traditional milk producers and smallscale poultry farmers be piloted. This could be done through linkages with Kombo Dairy Farm for the dairy sub-sector whereby the farms provide essential inputs and guarantee the purchase of the outputs. Opportunities also exist for linking FOs in the cattle and small ruminant/meat sub-sectors to the central Abuko abattoir but this will require the conduct of a feasibility and design study. The central abattoir's main activity is concentrated on slaughtering and

carcass dressing for butchers and individuals. The feasibility study will look into the possibility of upgrading the facility to embrace processing and rendering of by-products.

6.3 Non-Governmental Organizations' (NGOs) acting in support of the value chain

There are no NGOs acting in support of the value chains

7. NATIONAL OR REGIONAL PROJECTS FROM WHICH THE VALUE CHAINS BENEFIT

There are two national and one regional projects from which the value chains benefit: The national projects are the Livestock and Horticulture Development Project (LHDP) and the recently approved Food and Agriculture Sector Development Project (FASDEP). The LHDP (jointly funded by the African Development Bank and the International Fund for Agricultural Development) in which livestock is a component, is being implemented nationwide. The objective is to reduce rural poverty by raising the incomes of rural producers. The recently approved Global Agriculture and Food Security Programme (GAFSP) funded FASDEP seeks to reduce rural household poverty, food insecurity and malnutrition, through increased agricultural production and productivity and commercialization.

The Sustainable Management of Globally Significant Endemic Ruminant Livestock of West Africa project (PROGEBE) is a livestock specific project regional project being implemented in three districts in Lower River and Central River Regions. The project objective is to ensure a sustainable management of targeted endemic ruminant livestock breeds in four West African countries in order to improve rural economies and ensure the conservation of these breeds and their globally unique genetic traits.

8. POLICIES AND STRATEGIES

8.1 Natural Resource Policies

The Agriculture and Natural Resources (ANR) Policy Framework (2009-2015) was developed by government to chart the nature and scope of its interventions in poverty reduction, the achievement of Vision 2020 and the Millennium Development Goals with the following key strategic objectives: improved and sustainable measurable levels of food and nutrition security in the country and vulnerable populations in particular; a commercialized Agriculture and Natural Resources sector ensuring measurable competitive, efficient, and sustainable food and agricultural value chains, and linkages to markets; institutions (public and private) in the sector are strengthened, and providing needed services, strong and enabling environment, and reducing vulnerability in food and nutrition security; and sustainable effective management of the natural resource base of the sector.

The Policy Objectives of the livestock sub-sector are as follows: By the year 2015 sustainable production and productivity of livestock improved and meeting at least 75 percent of national demands in meat and meat products and by at least 25 percent of milk products demands over present levels; policy advice and regulation, functional delivery services and essential inputs are available, affordable and accessible in every region, and contributing to measurable increase in production of livestock; value chains (production, processing and marketing) of the livestock sub-sector are efficient, effective and linked directly to markets, producing competitive products and increasing incomes and employment; national policies coordinated and harmonized with regional and international policies and initiatives for increased economic integration of The Gambia into the sub region, and enhanced complementarities between The Gambia and other countries in the region; and guidelines, measures and regulations enforced to ensure sustainable management of the country's natural resource base (land and water resources and germ plasm). The areas of focus of the policy include the following: advancing the process of commercializing and modernizing the sector; strengthening selected institutions to deliver needed services; and supporting the livestock sub-sector for increased production.

Related to these objectives are the following key strategies: carry out special initiatives to revitalize, modernize and commercialize the sub-sector to achieve significant increases in producing competitive meat and dairy products to meet national requirements and the local high value markets (tourist and entertainment industries); and diversifying the livestock production base; undertake a detailed review of reports of recent studies and assessments of the sub-sector, including that done by the AfDB (in 2000) in partnership with the private sector; strengthen technical norms and facilities for quality and safety controls and their compliance in order to facilitate access to high value markets for livestock and livestock products; review and update all legislation pertaining to the livestock sub-sector, especially the Disease Control Act and related legislation; and strengthen collaboration with the International Office for Epizootics, and the Inter-African Bureau for Animal Resources AU/IBAR.

The policy recognizes the significant role commercialized livestock enterprises can play to satisfy national demands for animal products. It also recognizes that agro-industries and markets possess potentials to transform the sector from its current traditional subsistence nature to a commercial and modern one by creating opportunities to produce selected high value commodities such as livestock products. It calls for the enforcement of guidelines, measures and regulations to ensure

sustainable management of the country's natural resource base (land and water resources and germ plasm) without outlining appropriate strategies. The policy does not articulate a specific livestock breeding policy and strategies to achieve the objective of increasing milk and production by at least 25 and 75 percent, respectively over present levels. Strategies to improve feeding systems in order for farmers to better utilize the genetic potential of their cows for milk production were also absent. The Policy is also silent on the issue of animal genetic resource conservation. In addition, there is a lack of conducive policy for promotion and support of private veterinary services for the delivery of animal health care.

8.2 Incentives and/or disincentives to producers and consumers

The government no longer provides subsidies but incentives to investors and agriculture including animal husbandry, meat processing, tanning and export of live animals, is one of the priority areas identified. In this regard the government provides incentives for those eligible under the GIEPA Act 2010 which include import and Value Added Tax waivers in respect of the importation of manufacturing plants, construction material, and spare parts for a period of 5 years, and raw materials and intermediate inputs for 5 years. Investment incentives for export oriented livestock enterprises exporting at least 30 percent of outputs include: 10 percent corporate or turn over tax concession for 5 years; financial planning services and advice; capacity building; export market research and promotion; and product design and consultancy.

8.3 Credit policies

The objective of the national Agricultural and Rural Financial Services policy is to establish appropriate systems and mechanisms to provide financial services to all categories of farm enterprises with a particular focus on small and medium holdings, youth and women initiatives. The key strategies to achieve the objective include the following: strengthen existing systems and create different types of financial delivery systems and mechanisms; pursue, finalize and operationalize the creation of an Agricultural Development Fund/Bank; build the capacities of selected institutions of both the supply and demand sides of rural finance; strengthen and expand existing linkages between economic agents (producers, processors, marketers, traders) and financial services providers; and monitor and evaluate the performance of the financial services systems and the linkages established.

8.4 International trade policy

The National Trade Policy (2011-2016)

The National Trade Policy provides the framework for trade in commodities, including livestock. It is designed to improve and maintain a competitive trading environment that is capable of enhancing domestic production, improving export performance and harnessing The Gambia's comparative advantage in international trade. Strategies and measures relevant to the livestock sector comprise the following: pursuance of policies to improve the agribusiness environment to attract commercial investment in agriculture including livestock production; promotion of the processing of agricultural produce for value addition; and ensuring that national products meet international standards to improve market access. While the articulated policy has been of a liberalized market, it has not been uncommon for government to institute price ceilings on the purchase of cattle and small ruminants to make meat available to the average local consumer. This generally makes the margin to cover

costs of abattoir services, procurement, transportation and sales too tight for a reasonable level of profit.

ECOWAS Regional Agriculture Policy (ECOWAP)/Comprehensive Africa Agriculture Development Programme (CAADP) Compact

In 2009 the Government of The Gambia (GoTG) embarked on roundtable consultations and systematic stocktaking of past and current agriculture development efforts and initiatives to develop the Comprehensive Africa Agriculture Development Programme (CAADP) Compact under the New Partnership for Africa's Development (NEPAD). The main goal of CAADP is to help African countries reach a higher path of economic growth through agriculturally-led development which eliminates hunger, reduces poverty and food and nutrition insecurity, and enables expansion of exports. The Economic Community of West African States (ECOWAS) has been mandated to support and coordinate the implementation of the program. In this context, ECOWAS developed the regional agricultural policy (ECOWAP). The general objective of the Regional Agricultural Policy adopted by ECOWAS is to contribute in a sustainable way to meeting the food needs of the population, to economic and social development, to the reduction of poverty in the Member States, and thus to reduce existing inequalities among territories, zones and nations.

This global objective is broken down into seven specific objectives focusing on: food security for people in the region; reducing food dependence and achieving food sovereignty; involving producers in markets; creating jobs with guaranteed incomes in order to improve living conditions and services in rural areas; intensifying production systems in a sustainable manner; reducing the vulnerability of West African economies by limiting factors of instability and regional insecurity; and adopting appropriate funding mechanisms. Thus, ECOWAP's objectives affirm the principle of regional food sovereignty, primarily through high regional integration and appropriate levels of border protection, differentiated according to the specific needs of each supply chain.

Acts, regulations and laws governing the value chain

The Diseases of Animal Act (1844)

The Act is outdated and does not cover the powers to delegate regulatory functions to accredited veterinarians. It does not also define the role of private veterinary practitioners and their obligations to report on epizootic or zoonotic diseases to the veterinary authorities. Furthermore, the levels of compensation to livestock owners in the wake of epizootic disease outbreaks are very low. Overall the Act is not in line with the OIE recommended standards for Modern Animal Health Legislations. The government intends to submit a request to the OIE for assistance for the drafting of new animal legislation in 2013.

The Medicines Act (1984)

It aims to regulate the importation, manufacture, distribution and use of both human and veterinary pharmaceuticals. The Act has put in place the Medicines Board as the oversight body for its implementation. The membership is mainly drawn from the medical and pharmaceutical sectors. But recently, the Chief Veterinary Officer has been co-opted as a member. Whereas the classification, regulations and schedules for human medicines have been developed and enforcement is ongoing, no

such system is in place for the control of veterinary drugs. As such, there are many reports of the sale of veterinary drugs that are suspect in terms of their safety and quality. The current Act is under review and its scope, according to the new draft Bill 2011, will also cover cosmetics. In addition a Medicines Regulatory Agency will be established by Government to enforce the new Act.

The Veterinary Council Act (2000)

The Act prescribes the functions of the council and aims to regulate veterinary practice, prescribe standards of professional conduct and ethics for veterinary surgeons, para-vets and auxiliaries. No regulations have so far been developed to facilitate the enforcement of the Act. The OIE Performance of Veterinary Services (PVS) Gap analysis conducted in 2012 recommended for the review of the membership of the council to ensure that its composition is in line with OIE recommended standards for veterinary statutory bodies.

The Food Safety and Quality Act (2011)

The Food Safety and Quality Act replaced the Food Act of 2005. The overall objective of the Food Safety and Quality Act is to establish a food Safety and quality regime by instituting structures and control mechanisms to ensure the safety and quality of food and feed. The bill also proposes the establishment of the Gambia Food Safety and Quality Authority as the sole competent authority for food safety and quality control with the powers to delegate responsibilities to competent bodies and persons. The unitary authority approach has been adopted in order to address the fragmentations, confusions of roles and responsibilities, duplication of efforts and current inter agency conflicts undermining effective official controls. The Board of Directors has already been appointed and the Authority is expected to be established and operational in January 2013 under the office of the Vice President. The regulations prepared and enforced under the previous sectoral Acts will be reviewed and updated and consequently enforced under this Act.

The Gambia Livestock Marketing Agency Act (2008)

The Act has established The Gambia Livestock Marketing Agency which became operational in 2009. Its primary mandate is to promote the commercialization and marketing of livestock in The Gambia and also to facilitate the participation of Gambians in livestock marketing. A Board oversees the Agency. Since 2009 the agency was mainly occupied with the upgrading of regional abattoirs and the construction of mini slaughter houses and meat stalls. The agency also carries out butcher training, and is responsible for the collection of the annual cattle tax.

The Gambia Standards Bureau Act (2010)

The Act established the Gambia Standards Bureau which is responsible for the development of national standards including food standards. It also has responsibility for scientific metrology.

8.5 Major constraints requiring policy intervention

The major constraints requiring policy interventions and the suggested policies for smooth operation of meat and milk value chains are presented in table 22:

Table 22: Major constraints requiring policy interventions and suggested policies

Major constraints	Suggested solutions
The lack of appropriate policy and legal framework, including local conventions, for the protection and management of grazing lands, cattle tracks and watering points.	Domesticate the ECOWAS Transhumance Policy. Articulate and adopt a grazing lands, cattle tracks and watering points policy within the ANR policy framework and promulgate the necessary legislation and regulatory framework and enforcement mechanism.
The ANR Policy is silent on the issue of animal genetic resource conservation and the use of exotic/temperate pure breeds and their crosses.	Articulate and adopt a specific livestock breeding policy, strategies and programmes that could respond to attaining the current policy objectives of increasing milk and meat production by at least 25 and 75 percent, respectively over present levels.
Lack of a dedicated department responsible for the delivery of animal health and production services to smallholder farmers and for the regulation of the sub-sector.	Re-establish the Department of Livestock Services as per Cabinet's decision and also the ANR Policy statement.
Lack of conducive policy for promotion and support of private veterinary services for the delivery of animal health care services.	Articulated and adopt well defined roles for the public and private veterinary service providers in conformity with the recommended OIE sanitary mandate.

8.6 The suggested / identified policies facilitating the development or enhancement of livestock meat and milk value chains

These are indicated in table 22 above. The primary mechanism for embedding them in the relevant policy documents will be for value chain actors to advocate for a review of the relevant documents by the policy makers.

9. CONSTRAINTS AFFECTING MEAT AND MILK VALUE CHAINS AND PROPOSED SOLUTIONS

An analysis of the Strengths, Weaknesses, Opportunities and Threats (SWOT) of the meat and milk value chains was carried out, and the main findings are summarized in tables 23 to 25 below.

Table 23: SWOT analysis of ruminant meat value chain

Strengths	Weakness
The main production systems utilize indigenous breeds that are adapted to the environment.	Low livestock productivity; low daily growth rates.
The production systems are primarily extensive with low production costs.	Dwindling grazing resources as a result of expansion of cropping areas and seasonal variation in quality and quantity of forage available.
	Veterinary services, extension and advisory services in key production subjects (feeding, bio-security) to producers in the traditional system are inadequate.
	The absence of strong farmers' organizations makes it difficult for the farmers to receive certain services.
Opportunities	Threats
High market demand for meat owing to population growth, urbanization and growth of tourism and hospitality industry.	High incidence of diseases leading to high mortalities primarily due to inadequate and high cost of veterinary services.
Productivity levels can be enhanced through input provisions – veterinary care and provision of quality feed.	Scarcity of feed resources due to climatic factors (drought).
Production traits of indigenous cattle can be improved through selection within the existing population.	

Table 24: SWOT analysis of the pig value chain

Strengths	Weakness
Existence of an organization of small-scale producers with legal status.	Weak support service capacity in extension, technology generation and in financing.
Availability of adapted pig breeds.	Limited information flow to producers from the public sector and the absence of a disease reporting system.
	High incidence of diseases leading to high mortalities primarily due to inadequate and high cost of veterinary services.
	Scarcity of feed resources.
	Weak policy and regulatory framework, particularly in biosecurity.
	Weaknesses in backward linkages particularly for feed, veterinary drugs and vaccines.

Strengths	Weakness
	Inadequacy of infrastructure for slaughtering, processing, preservation, cold storage, and distribution.
	Lack of value chain actors' network/platform.
Opportunities	Threats
Rising demand products from local markets and the tourist industry.	High incidence of diseases (ASF) leading to high mortalities primarily due to inadequate and high cost of veterinary services.
	Scarcity of feed resources due to climatic factors (drought)

Table 25: SWOT analysis of the milk value chain

Strengths	Weaknesses
The ANR policy (2009-2015) supports the development of an efficient milk value chain. Objective: to increase milk production by 25 percent by 2015.	The policy does not articulate a specific livestock breeding policy and strategies to achieve the objective of increasing milk and production.
Large cattle population with the local N'Dama being adapted to the environment; low production cost due to extensive grazing.	Dwindling grazing resources as a result of expansion of cropping areas, human settlements and seasonal variation in quality and quantity of forage available; poor quality forages can hardly support high milk yields.
Crossbred cattle (F1) have been found to be adapted to the environment and are acceptable to farmers in the in the low to medium tsetse challenge areas of the WCR and NBR. F1 cows can produce up to five times more milk than the purebred N'Dama and are strong enough to survive under the prevailing environmental conditions and do well with reasonable management.	Absence of a dedicated or structured AI service and low AI success rates leading to low calving percentages. A shortage of suitable dairy animals due to the non-availability of FIs and pure breeds in the local market and the high cost of importing these animals from Senegal.
The participation of women in the value chain has greatly contributed to increased household income, food security and household nutrition.	Rural markets are small and the purchasing power is low to absorb value added livestock product.
Willingness of stakeholders to form cooperatives for village level processing using simple equipment.	A lack of required infrastructure for transporting, cooling, and distributing produced milk from rural to major consumer centers in urban areas; the cold chain is non-existent along the dairy collection and distribution chain.
	The absence of strong farmers' organizations makes it difficult for the dairy farmers to receive certain services.
	Veterinary services, extension and advisory services in key production components (feeding, bio-security) to producers in the traditional system is inadequate.

Strengths	Weaknesses
	Low level of government budgetary allocation to the livestock sector in comparison to its contribution to national and agricultural GDP. Lack of appropriate financing mechanism to support commercialization of the sector.
Opportunities	Threats
High market demand for milk and milk products due to population growth, urbanization and growth of tourism and hospitality industry.	Competition from imported dairy products from Senegal and the European Union.
Potential for establishing linkages between small-scale producers and commercial processors; will create diversified value added products and employment; particularly for youth and women.	Inability to be compliant with sanitary and food safety regulations.
There is a potential for higher milk yield through better use of crop residues and by-products by up-grading them.	High incidence of diseases leading to high mortalities and/or milk yields primarily due to inadequate and high cost of veterinary services.
Establishment of village level processing units will create jobs, reduce wastage (especially in the rainy season).	Scarcity of feed resources due to climatic factors (drought).
Production traits of indigenous cattle can be improved through selection within the existing population and cross-breeding with exotic breeds.	

Constraints (bottlenecks in areas of inputs availability, logistical issues, infrastructure, policies, etc.) affecting the meat and milk value chains and the proposed solutions are summarized in table 26 below.

Table 26: Constraints affecting the meat and milk value chains and proposed solutions

Critical constraints	Proposed solutions
Dairy Value Chain	
Limited milk production potential of the N'Dama cow.	Sensitize farmers on the need to improve their dairy herds and increase milk production through selection and breeding; up-scale the pure breeding programme. The positive effects of the pure breeding programme on farmers include low mortalities, higher growth rates and increased milk production.
Lack of quality breeding animals	
	Promote the stabling/compost pen technology, which involves provision of sheds, supplementary feeding, health care and hygienic milking practices for increased milk production during the dry season and income.

Critical constraints	Proposed solutions
	Train farmers on selection and breeding.
Non availability of FIs and pure breeds in the local market and the high cost of importing these animals from Senegal	Encourage, promote and support private sector investments in AI services in the low tsetse challenge GBA.
Absence of a dedicated or structured AI service.	Sensitize potential dairy producers. Build the capacity of the producers.
Seasonal fluctuation in forage availability accentuated by recurrent bush fires	Build on current knowledge and feeding/coping strategies (collecting and storing crop residues, fodder tree leaves and hay).
Restricted availability of low-cost feed sources and watering facilities.	Conduct an inventory and analysis of range resources – vegetation and existing water infrastructure; identify water infrastructure needs and develop watering points. Develop guidelines for cost sharing and use of rehabilitated/developed livestock infrastructure. Promote the production of leguminous forages in backyards and around vegetable gardens for supplementation of low quality crop residues in backyard fattening or for milk production in the dry season. Assist the established feed mills to provide adequate and balanced nutritious feed stuff for dairy cows to increase milk production.
Lack of facilities in terms of transport, milk collection centres, cooling systems, processing facilities, adequate marketing outlets; high post-harvest losses.	Organize milk producers within a reasonable distance from KDF to set up a milk collection scheme linked to KDF.
Inability on the part of the KDF to collect milk from other producers.	Establish small scale village milk processing facilities. This will lead to increased milk production, reduction in post-harvest losses, and increased income for farmers and increased processing of value added products. Provision of motorized tricycles to milk collectors to facilitate easy access to herds in remote villages.
Meat Value Chains - Cattle and small ruminants	
Seasonal fluctuation in forage availability accentuated by recurrent bush fires;	Same as above for dairy.

Critical constraints	Proposed solutions
restricted availability of low-cost feed sources, high incidence of diseases; and inadequate and high cost of veterinary inputs and services.	
Livestock processing and marketing	
Inadequate or absence of basic facilities like sheds, feeding and watering facilities at the livestock markets (<i>lomos</i>)	Improve livestock markets by providing adequate facilities for animal handling.
Poor hygienic conditions of abattoirs, processing facilities, transportation and butcher shops; they do not meet the required sanitary and hygienic standards.	Upgrade slaughter, processing facilities, transportation and butcher shops to comply with the national food safety and quality regulations.
Logistical issues	
Absence of appropriate transportation for live animals and processed meat	Provide appropriate transport for live animals and processes meat (refrigerated vans)
Policies	
The lack of appropriate policy and legal framework, including local conventions, for the protection and management of grazing lands, cattle tracks and watering points.	Domesticate the ECOWAS Transhumance Policy. Articulate and adopt a grazing lands, cattle tracks and watering points policies within the ANR policy framework and promulgate the necessary legislation and regulatory framework and enforcement mechanism.
The ANR Policy is silent on the issue of animal genetic resource conservation and the use of exotic/temperate pure breeds and their crosses.	Articulate and adopt a specific livestock breeding policy, strategies and programmes that could respond to attaining the current policy objectives of increasing milk and meat production by at least 25 and 75 percent, respectively over present levels.
Lack of a dedicated department responsible for the delivery of animal health and production services to smallholder farmers and for the regulation of the sub-sector.	Re-establish the Department of Livestock Services as per Cabinet's decision and also the ANR Policy statement.
Lack of conducive policy for promotion and support of private veterinary services for the delivery of animal health care services.	Articulated and adopt well defined roles for the public and private veterinary service providers in conformity with the recommended OIE sanitary mandate.

Prioritized areas of interventions

The prioritized areas of intervention in response to the needs of the value chain actors and gaps identified are:

- development of processing and marketing infrastructure and equipment
- support to producers to improve production and productivity, including breeding and

➤ development of biosecurity, food safety and quality management and control systems and develop the capacities of value chain actors to comply with national food safety and quality regulations.

10.SUGGESTED PROJECTS AND PROGRAMMES (INVESTMENT PLANS)

The proposed programme takes cognizance of the livestock sector policy and strategies, the GNAIP, the on-going development projects, and attempts to address some of the *fundamental constraints to the development of the livestock meat and dairy value chains*. The title of the proposed programme is the Livestock Productivity Improvement and Commercialization Programme (LPICP). The overall objective is to develop a sustainable livestock industry that contributes to the improvement of the livelihoods of all the actors in the livestock industry/value chains and the overall national economy.

The specific objectives are: (i) to improve livestock productivity, increase value addition and market access; (ii) to make available to consumers competitive, quality and safe meat and dairy products; (iii) to improve the living standards of the people engaged in the livestock industry through increased income generation; and (iv) to contribute to enhancing the nutritional status of the general population.

The proposed programme would have four components: Integrated Livestock Production (ii) Livestock and Animal Products Processing and Marketing; (iii) Development of a Biosecurity, Food Safety and Quality Management and Control Systems; and (iv) Programme Management.

Component 1.0 - Integrated Livestock Production:

This component will focus on enhancing livestock productivity for increased milk and meat production on a sustainable basis. It comprises four sub-components:

Sub-component 1.1 - Milk Production: This sub-component is aimed at increasing milk production in the rural areas and the Greater Banjul Area. The major thrust is to promote the compost pen/stabling technology⁴ primarily in the rural areas and to introduce crossbreds (FIs) dairy cattle in the Greater Banjul Area.

To improve the N'Dama cattle's milk production potentials, the International Trypanotolerance Centre will be supported to sustain the open nucleus herd at Keneba. This will ensure the availability of breeding bulls for the continuation of the village based pure breeding programme initiated in 2000 with Gambia Indigenous Livestock Multiplier Association and working in close collaboration with the national livestock services. Matching grants will be provided to 120 villages that meet the selection criteria to purchase breeding bulls from ITC. Grants will also be provided to 400 farmers to construct stables/compost pens for the female offspring. Selection criteria will be developed in consultation with all relevant actors - see Sub-component 4.2. Participating villages and farmers will be supported to organize networks for information and experience sharing.

Commercial dairy production schemes in the Greater Banjul Area based on the production and utilization of FIs milking cows on farms. This initiative will build upon and learn from the lessons of the pilot FI scheme implemented by ITC in collaboration with the Department of Livestock

⁴ Under a stabling technology, farmers' main benefits will include 24-27% increase in milk offtake and extra manure (6%) (Fall, 2010)

Services. The project will facilitate the development of guidelines/incentives for the importation of semen and delivery of Artificial Insemination (AI) services by the private sector. Guidelines for the selection of participating farmers and the cows to be inseminated will also be developed. Matching grants will be provided to 170 farmers that meet the selection criteria to establish FI dairy herds. The participating producers will also be organized into a network and linked to Kombo Dairy Farm (see sub-component 2.3).

Capacity building and training will be provided to the producers/herders and will include business management, feeding, biosecurity, hygienic milking and milk handling. A Training needs assessment and the development of training materials and extension manuals will be carried out by a team of national consultants (See Sub-component 4.2). Feed rations will be developed under sub-component 1.5.

Sub-component 1.2 - Establishment of Small Ruminant Breeding and Fattening Enterprises: This component is aimed at supporting small ruminant farmers for enhanced production and productivity. Matching grants will be provided to 420 farmers (mostly women and youth) for the purchase of improved breeding stock and construction of pens. The criteria for selection for project support will be determined (Programme 4). Beneficiary farmers will be trained in areas including farm bio-security, feed production and conservation, preparation of least cost rations, breeding, and business management. A Training needs assessment and the development of training materials and extension manuals will be carried out by a team of national consultants (See Component 4). The participating producers will also be organized into a network.

Beneficiary farmers will be trained in areas such as poultry health, feeding, handling and marketing of products and waste disposal. A Training needs assessment and the development of training materials and extension manuals will be carried out by a team of national consultants (See Component 4). The participating producers will also be organized into a network. Feed rations will be developed under sub-component 1.5.

Sub-component 1.3 Establishment of Pig Breeding and Fattening Enterprises: This component is aimed at assisting 170 farm families that have lost their animal assets as a result of African swine fever outbreaks over the years. Support will be in the form of matching grants to purchase breeding stock, to construct animal pens and to conduct training. A Training needs assessment and the development of training materials and extension manuals will be carried out by a team of national consultants (See Component 4). The participating producers will also be organized into a network. Feed rations will be developed under sub-component 1.5.

Sub-component 1.4 - Establishment of cattle fattening schemes: Under this sub-component, the project will provide matching grants to 150 farmers to construct pens and embark on the establishment of cattle fattening schemes. The producers' capacities will be built in areas including feed production and conservation, animal health, business management and marketing. Feed rations will be developed under sub-component 1.5. The participating producers will also be organized into a network.

Sub-component 1.5 - Feed Production: Under this component the amount of crop residues and crop by-products available in the country will be assessed and nutrient contents determined. Based on the available feed resources in their localities, low cost feed rations will be developed and use promoted

to increase milk and meat production. The cultivation of leguminous forages (multipurpose trees) in backyards and around vegetable gardens will be promoted; the foliage will be used for supplementation of low quality crop residues in backyard fattening or for milk production in the dry season. Support to develop and expand low cost feeding technology for commercial milk production, pig and cattle fattening will be provided. Small scale equipment and tools will be provided to farmers to train and demonstrate improved feed conservation technologies and practices.

Component 2.0 - Livestock and Animal Products Processing and Marketing Programme:

This purpose of this component is to improve the meat and milk value chains through the improvement of markets and processing infrastructure. This will ensure that marketing and processing facilities and livestock products meet national food safety regulations. The programme consists of 2 components:

Sub-component 2.1 - Development of Livestock Markets: The activities under this component will include an initial assessment of the conditions and management systems of the primary livestock markets and the provision of a matching grant to complement Gambia Livestock Marketing Agency funding for upgrading of the markets.

Sub-component 2.2 - Development of Processing Infrastructure: This component has three sub-components: (i) upgrading of the infrastructure for livestock slaughtering and processing, (ii) establishment of infrastructure for milk processing in the rural areas, and (iii) establishment of Milk Collection Centres (MCCs) in the Greater Banjul Area that will be linked to Kombo Dairy Farm.

i) Upgrading of the infrastructure for livestock slaughtering and processing: An assessment of the conditions and management systems of the slaughter facilities in compliance with the national food safety regulations will be conducted prior to project implementation. Based on the assessment, matching grants will be provided to complement Gambia Livestock Marketing Agency funding for the upgrading of the facilities. Capacity building and training for stakeholders (abattoir/slaughter house personnel, meat inspectors, butchers & meat processors) in the meat processing chain will also be conducted.

ii) Establishment of infrastructure for milk processing in the rural areas: The activities under the second sub-component will include the design of milk collection, processing and marketing schemes; the construction of milk processing centres; the procurement and installation of milk processing equipment and solar cooling and lighting systems; tricycles for milk collection will be procured. Capacity building and training will be provide to stakeholders in the milk supply and processing chain (herders, transportation and handling personnel, processors and food safety inspectors).

iii) Establishment of Milk Collection Centres (MCCs) in the Greater Banjul Area that will be linked to Kombo Dairy Farm. The activities under this sub-component will include an initial assessment of milk production capacity in the Greater Banjul. Following the assessment, a milk collection and delivery system, and an appropriate MCC structure will be designed. The project will provide the necessary equipment and materials, including milk cans and testing kits. Capacity building and training of stakeholders in the milk supply chain (farm and MCC personnel, transportation and handling personnel, and food safety inspectors) will be conducted.

Component 3.0: Development of a Biosecurity, Food Safety and Quality Management and Control Systems

The project will provide support to The Gambia Standards Bureau (working through the National Food Standards Committee to develop the national standards for livestock products and infrastructure relevant to the value chains. Furthermore, support will be provided to the newly established GFSQA to carry out official food controls along the livestock/meat and milk value chains. Capacity building will target the Foods Standard Committee and the food inspection and certification personnel of the GFSQA.

Component 4.0: Project Management

The project would be implemented by a Project Management Unit (PMU) within in the Central Project Coordination Unit (CPCU) of the Ministry of Agriculture. The PMU would be headed by a Project Director, assisted by two Component Coordinators, a Monitoring and Evaluation Officer, and an Accountant. Project activities will be implemented through Memorandum of Understandings and contracts with implementing partners.

A Project Steering Committee would be established to review annual work plans and budgets, progress and quality of project implementation and results on a bi-annual basis. The Committee membership would include representatives from public and value chain actors, particularly project beneficiaries.

The project will recruit National Consultants to:

- Lead the sensitization of potential project beneficiaries and to develop criteria for beneficiary and site selection in consultation with all relevant stakeholders. The consultations will be conducted in all the six agricultural regions where the project objectives and programmes will be presented and the selection criteria for project intervention developed and agreed upon
- Carry out training needs assessments of all the relevant actors in the milk and meat production value chains, prepare training materials and extension manuals, and a training plan to be implemented by the project
- Carry out training needs assessment of all the relevant actors involved in milk and meat processing and commercialization
- Review and update livestock sub-sector policies and strategies and the livestock component of the GNAIP.
- Conduct a livestock marketing study.

Table 27 shows the estimated associated costs of the LPICP

Table 27: Project Cost Summary by Programme

Livestock Productivity Improvement & Commercialization Programme	Years					
	1	2	3	4	5	Total
Component 1.0: Integrated Livestock Production						
Sub-component 1.1: Milk Production	70 270	74 324	79 730	85 135	63 514	372 973
Sub-component 1.2: Establishment of Small Ruminant Breeding & Fattening Enterprises	39 189	39 189	66 216	66 216	66 216	277 027
Sub-component 1.3: Establishment of Pig Breeding & Fattening Enterprises	28 378	27 027	21 622	13 514	14 865	105 405
Sub-component 1.4: Establishment of cattle fattening schemes	17 564	16 212	17 564	16 212	16 212	83-764

Livestock Productivity Improvement & Commercialization Programme	Years					
	1	2	3	4	5	Total
Sub-component 1.5: Feed Production	11 757	65 000	50 000	45 000	0	160 000
Total Component 1.0	213 104	273 104	290 536	266 618	183 780	1 227 142
Component 2.0: Livestock & Animal Products Processing and Marketing						
Sub-component 2.1: Development of livestock markets, including poultry (lomos)	114 865	114 865	108 108	216 216	0	554 054
Sub-component 2.2: Development of processing infrastructure	378 378	224 324	648 649	441 892	12 162	1 705 405
Total Component 2.0	493 243	339 189	756 757	658 108	12 162	2 259 459
Component 3.0. Development of Biosecurity, Food Safety and Quality Management and control systems						
Component 4.0. Project Management	300 743	112 973	104 865	53 162	40 000	610 743
Sub-component 4.1: Project Management Unit	250 811	126 486	126 486	126 486	126 486	756,757
Sub-component 4.2. Sensitization, training needs assessment and studies	101 351	61 110	50 299	50 299	8 108	271 169
Total Component 4.0	352 162	187 597	176 786	176 786	134 595	1 027 925
Total	1 359 253	912 863	1 328 944	1 153 674	370 536	5 012 162

II.CONCLUSIONS

The objectives of this consultancy are to:

- establish the current status of livestock/meat and milk value chains
- conduct an inventory of current policies on livestock/meat and milk value chains and identify gaps
- identify projects and programmes for the development/enhancement of livestock/meat and milk value chains and propose priority investment plans for each value chain
- and identify policies facilitating the development or enhancement of livestock/meat and milk value chains
- suggest mechanism of embedding them in national key policy documents

The study has revealed that the livestock meat and milk value chains are dominated by small scale producers and the animals are managed under traditional/free range system with little or no supplementary feeding. Despite the significant herd / flock sizes of indigenous livestock, the producers do not produce quality products in sufficient quantities. Consequently, The Gambia is very dependent on imports of meat and milk primarily from the EU and Brazil, and also live cattle and sheep from Senegal, Mali and Mauritania. Increased productivity of livestock in the various production systems is an important issue that needs to be addressed because of the current low productivity. The range of livestock products emanating from the value chains is very limited with limited application of quality grading standards. There is also the absence of enforcement of food safety regulations and sanitary measures.

Livestock infrastructure from production to marketing activities is grossly inadequate in terms of both quantity and quality standards. There are also a limited number of value chain stakeholders' networks and associations, and the existing ones are resource poor and have poor technical and organizational capacities.

A major conclusion of the study is that although several policy instruments advocate for a value chain approach for the development of the livestock sector, the strategies and interventions put in place do not reflect such an approach hence the persistent weak linkages between the various value chain components and their various stakeholders. Furthermore, there is minimal public sector investment designed to correct the situation.

The study has established key policy gaps, i.e. policy and legal framework for the management of grazing lands, cattle tracks and watering points; animal genetic resource conservation and the use of exotic/temperate pure breeds and their crosses; and the promotion and support the private veterinary services. The institutional framework within the Ministry of Agriculture for the implementation of the livestock related policies in the ANR has structural and systemic weaknesses as there is no dedicated national department mandated to carry out this thrust in partnership with the relevant stakeholders of the value chains. Though the ANR policy has prescribed the re-establishment of Department of Livestock Services, this is yet to be implemented. The targets of increasing meat and milk production by 75 and 25 percent, respectively by the year 2015 is not attainable without the introduction and implementation of semi intensive meat and milk production in the tradition mixed farming systems. This should be complemented with the introduction and

implementation of intensive milk production schemes based on the use of cross breeds in the peri urban areas where the tsetse challenge is low.

The study has identified the Livestock Productivity Improvement and Commercialization Programme (LPICP) with the overall objective of developing a sustainable livestock industry that contributes to the improvement of the livelihoods of all the actors in the livestock industry/value chains and the overall national economy. If implemented, the programme will improve livestock productivity, increase value addition and market access, make available to consumers competitive, quality and safe meat and dairy products, and improve the living standards of the people engaged in the livestock industry through increased income generation and an enhancement of the nutritional status of the general population.

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13.ANNEX

Annex 1: Programme Budget/Investment Plan

Livestock Productivity Improvement and Commercialization Programme (LPICP)								
	Years							
			1	2	3	4	5	
	Units	US\$	Base Costs					Total
Component 1.0: Integrated Livestock Production								
Sub-components /Activities								
Sub-component 1.1 Milk Production								
Sub-component 1.1: Promotion of cattle breeding & stabling/compost pen technology								
Support to ITC	lump sum	16 216	16 216	16 216	16 216	0	0	48 649
Provide matching grants to villages to purchase breeding bulls	No. villages	405	8 108	12 162	12 162	12 162	4 054	48 649
Provide matching grants to farmers for the establishment of stables/compost pens	No. farmers	135	8 108	10 811	13 514	16 216	5 405	54 054
Organize and support network of farmers participating in scheme	lump sum	1 351	1 351	0.0	1 351	0	1 351	4 054
Capacity building	sessions	4 054	12 162	12 162	12 162	12 162	12 162	60 811
Sub Total			45 946	51 351	55 405	40 541	22 973	216 216
Sub-component 1.2: Promote the introduction of crossbred (FIs) dairy cattle								
Provide matching grants to farmers for the establishment of FI herds	No. farmers	541	10 811	10 811	10 811	32 432	27 027	91 892
Capacity building	session	4 054	12 162	12 162	12 162	12 162	12 162	60 811
Organize and support a network of farmers participating in scheme	session	1 351	1 351	0	1 351	0	1 351	4 054
Sub Total			24 324	22 973	24 324	44 595	40 541	156 757
Total (1.1 +1.2)			70 270	74 324	79 730	85 135	63 514	372 973

Livestock Productivity Improvement and Commercialization Programme (LPICP)								
	Years							
			1	2	3	4	5	
	Units	US\$	Base Costs					Total
Sub-component 1.2: Establishment of Small Ruminant Breeding and Fattening Enterprises								
Provide matching grant to farmers to purchase improved breeding stock	No. farmers	135	6 757	6 757	13 514	13 514	13 514	54 054
Provide matching grant to farmers to construction pens	No. farmers	405	20 270	20 270	40 541	40 541	40 541	162 162
Capacity building	sessions	4 054	12 162	12 162	12 162	12 162	12 162	60 811
Organize and support a network of farmers participating in scheme	session	1 351	1 351	0	1 351	0	0	2 703
Total sub-component 1.2			39 189	39 189	66 216	66 216	66 216	277 027
Sub-component 1.3: Establishment of Pig Breeding and Fattening Enterprises								
Provide matching grants to farmers to construct pens	No. farmers	270	10 811	10 811	8 108	5 405	5 405	40 541
Provide matching grants to farmers to purchase of breeding stock	No. farmers	405	16 216	16 216	12 162	8 108	8 108	60 811
Organize and support a network of farmers participating in scheme	session	1 351	1 351	0	1 351	0	1 351	4 054
Total sub-component 1.3			28 378	27 027	21 622	13 514	14 865	105 405
Sub-component 1.4: Establishment of cattle fattening schemes								
Provide matching grant to farmers to construct compost pens	No. farmers	135	4 050	4 050	4 050	4 050	4 050	20 250
Organize and support a network of farmers participating in scheme	session	1 351	1 351	0	1 351	0	-	2 703
Capacity building	sessions	4 054	12 162	12 162	12 162	12 162	12 162	60 811

Livestock Productivity Improvement and Commercialization Programme (LPICP)								
	Years							
			1	2	3	4	5	
	Units	US\$	Base Costs					Total
Total Sub-component 1.4			17 564	16 212	17 564	16 212	16 212	83 764
Sub-component 1.5: Feed production								
Estimate quantities of crop residues and by products by geographical area	lump sum	6 757	6 757	0	0	0	0	0
Conduct analysis of nutrient content of available feeds	lump sum	5 000	5 000	0	0	0	0	0
Support to develop and expand low cost feeding technology for commercial milk producers	lump sum	5 000	0	5 000	0	0	0	5 000
Support to develop and expand low cost feeding technology for commercial pig fattening	lump sum	5 000	0	5 000	0	45 000	0	50 000
Support to develop and expand low cost feeding technology for cattle fattening	lump sum	5 000	0	5 000	0	0	0	5 000
Promote production of leguminous forages in backyards and around vegetable gardens	lump sum	30 000	0	30 000	30 000	0	0	60 000
Provide small scale equipment and tools for feed preparation and conservation	lump sum	20 000	0	20 000	20 000	0	0	40 000
Total sub-component 1.5			11 757	65 000	50 000	45 000	0	160 000
Total Component 1.0			213 104	273 104	290 536	266 618	183 780	1 215 385
Component 2.0: Livestock and Animal Products Processing and Marketing								
Sub-component 2.1: Development of livestock markets, including poultry (lomos)								
Assess the conditions and management systems of primary markets	lump sum	6 757	6 757	6 757	0.00	0.00	0.00	6 757
Provide matching grants to complement GLMA funding for the upgrading of markets	No. of Infra.	54 054	108 108	108 108	108 108	216 216	0.00	432 432
Total sub-component 2.1			114 865	114 865	108 108	216 216	0.00	439 189

Livestock Productivity Improvement and Commercialization Programme (LPICP)								
	Years							
			1	2	3	4	5	
	Units	US\$	Base Costs					Total
Sub-component 2.2: Development of processing infrastructure								
Upgrading the infrastructure for Slaughtering, Processing & Marketing of Meat								
Assess the conditions and management systems of the facilities	lump sum	6 757	6 757	6 757	0	0	0	13 514
Support the establishment of pig slaughterhouse in the GBA	lump sum	100 000	100 000	0	100 000	0	0	200 000
Provide matching grants to comp. GLMA funding to upgrade slaughter facilities	No. of Infra.	94 595	0	189 189	189 189	94 595	0	472 973
Capacity building for stakeholders in the meat processing chain	sessions	4 054	40 541	12 162	12 162	8 108	0	72 973
Sub-Total			147 297	208 108	301 351	102 703	0	759 459
Establishing infrastructure for milk processing in the rural areas								
Assess milk production capacities of selected sites and design milk collection, processing and marketing schemes and design processing centres	lump sum	9 459	9 459	9 459	0	0	0	18 919
Construct milk processing centres	No. of Infra.	35 135	105 405	0	70 270	35 135	0	210,811
Procure and install equipment and materials	lump sum	13,514	40 541	0	0	27 027	0	67 568
Procure and install solar system	No.	18 919	75 676	0	37 838	37 838	0	151 351
Capacity building & training	sessions	4,054	64 865	0	16 216	16 216	0	97 297
Sub Total			231 081	9 459	108 108	100 000	0	448 649
Establish Milk Collection Centres (MCCs) in the GBA linked to KDF								
Assess milk prod. capacities & design collection and deliver system	lump sum	6 757	0	6 757	0	0	0	6 757
Design & construct MCCs	lump sum	67 568	0	0	202 703	202 703	0	405 405
Provision of equipment and materials	lump sum	8 108	0	0	24 324	24 324	0	48 649
Capacity building of stakeholder	sessions	4 054	0	0	12,162	12 162	12 162	36 486
Sub Total			0	6 757	239 189	239 189	12 162	497 297

Livestock Productivity Improvement and Commercialization Programme (LPICP)								
	Years							
			1	2	3	4	5	
	Units	US\$	Base Costs					Total
Total sub-component 2.2			378 378	224 324	648 649	441 892	12 162	1 705 405
Total Component 2.0			493 243	339 189	756 757	658 108	12 162	2 259 459
Component 3.0: Development of Biosecurity, Food Safety and Quality Management and Control Systems								
Develop standards and regulations	sessions	4 054	97 297	48 649	48 649	0	0	194 595
Capacity building and training	sessions	4 054	64 865	24 324	16 216	12 162	0	117 568
Vehicle - Station Wagon	No	31 081	31 081	0	0	0	0	31 081
Food inspection kits	No	120	6 000	0	0	0	0	6 000
Food sampling kits	No	50	50 000	0	0	0	0	50 000
GPS	No	150	1 500	0	0	0	0	1 500
Meat inspection kits, including protective clothing	No	200	10 000	0	0	0	0	10 000
Laboratory reagents, media, rapid testing kits & consumables	lump sum	4 000	40 000	40 000	40 000	40 000	40 000	200 000
Total Component 3.0			300 743	112 973	104 865	52 162	40 000	610 743
Component 4.0: Project Management								
Sub-component 4.1 Project Management Unit								
Programme Coordinator	person/m onth	730	8 757	8 757	8 757	8 757	8 757	43 784
Programme Manager (production)	person/m onth	649	7 784	7 784	7 784	7 784	7 784	38 919
Programme Manager (Value Addition and Commercialization)	person/m onth	649	7 784	7 784	7 784	7 784	7 784	38 919
Monitoring and Evaluation Officer	person/m onth	649	7 784	7 784	7,784	7 784	7 784	38 919
Accountant	person/m onth	649	7 784	7 784	7 784	7 784	7 784	38 919

Livestock Productivity Improvement and Commercialization Programme (LPICP)								
	Years							
			1	2	3	4	5	
	Units	US\$	Base Costs					Total
Administrative Assistant	person/m onth	270	3 243	3 243	3 243	3 243	3 243	16 216
Drivers (3)	person/m onth	108	3 892	3 892	3 892	3 892	3 892	19 459
Motor bicycles	No	1 351	20 270	0	0	0	0	20 270
Field allowances	lump sum	8 108	8 108	8 108	8 108	8 108	8 108	40 541
Office expenses	lump sum	2 703	2 703	2 703	2 703	2 703	2 703	13 514
Project Steering Committee meetings	lump sum	541	1 081	1 081	1 081	1 081	1 081	5 405
Vehicle - Station Wagon	No	31 081	31 081	0	0	0	0	31 081
Vehicles – Pickups	No	21 622	64 865	0	0	0	0	64 865
Office furniture	lump sum	8 108	8 108	0	0	0	0	8 108
Office equipment and supplies	lump sum	13 514	13 514	13 514	13 514	13 514	13 514	67 568
Vehicle operation and maintenance	lump sum	54 054	54 054	54 054	54 054	54 054	54 054	270 270
Sub Total			250 811	126 486	126 486	126 486	126 486	756 757
Sub-component 4.2 Sensitization, Training Needs Assessment & Policy Review								
Sensitization & development of selection criteria: National Consultant	lump sum	10 811	10 811	0	0	0	0	0
Sens. of beneficiaries & dev. of criteria for beneficiary & site selection	sessions	4 054	24 324	0	0	0	0	0
Review of request from farmers, select sites and participating farmers	sessions	4 054	24 324	24 324	24 324	24 324	0	72 973
Carry out training needs assessment of value chain actors and prepare training materials and extension manuals: National Consultant (Production)	lump sum	9 459	9 459	0	0	0	0	0

Livestock Productivity Improvement and Commercialization Programme (LPICP)								
	Years							
			1	2	3	4	5	
	Units	US\$	Base Costs					Total
Carry out training needs assessment of value chain actors and prepare training								
materials and extension manuals: National Consultant (Value Addition and Commercialization)	lump sum	10 811	10 811	0	0	0	0	0
Training of field staff	lump sum	4 054	8 108	8 108	8 108	8 108	8 108	32 432
Review & update the livestock sub-sector policy and strategies and livestock component of GNAIP: National Consultant	lump sum	9 459	9 459	0	0	0	0	0
Policy validation workshop	lump sum	4, 54	4 054	0	0	0	0	0
Conduct of livestock marketing study	lump sum	6 757	0	6 757	0	0	0	6 757
Marketing study validation workshop	lump sum	4 054	0	4 054	0	0	0	4 054
Support the formation and functioning of a platform of the value chains actors	lump sum	17 867	0	17 867	17 867	17 867	0	53 601
Sub total			101 351	61 110	50 299	50 299	8 108	169 817
Total Component 4.0			352 162	187 597	176 786	176 786	134 595	926 574
LPICP Total			1 359 253	912 863	1 328 944	1 153 674	370 536	5 012 162

