



USAID
FROM THE AMERICAN PEOPLE

PARTNERSHIP FOR SAFE POULTRY IN KENYA (PSPK) PROGRAM

REGIONAL POULTRY VALUE CHAIN ANALYSIS

NOVEMBER 2010.

This publication was produced for review by the United States Agency for International Development. It was prepared by Winrock International.

PARTNERSHIP FOR SAFE POULTRY IN KENYA (PSPK) PROGRAM

REGIONAL POULTRY VALUE CHAIN ANALYSIS

DISCLAIMER

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government

Table of Contents

I.	Executive Summary	1
II.	Demand for Poultry Products	1
III.	Production Systems	3
IV.	Markets and Marketing	8
V.	Processing and Distribution	11
VI.	Development Programs	12
VII.	Policy Environment	13
VIII.	Recommendations	13
	Citation for Executive Summary	16

List of Tables

Table ES.1.	Population and urbanization (millions of people)	1
Table ES.2.	Estimated consumption of poultry meat and eggs (2005-2008 time period)	2
Table ES.3.	Flock size in Ethiopia, Kenya, Tanzania, and Uganda	3
Table ES.4.	Estimated annual poultry and egg production in Ethiopia, Kenya, Tanzania, and Uganda (various years)	4
Table ES.5.	Comparative prices for maize (\$/mt)	7
Table ES.6.	Price per bird at two levels of the supply chain	11
Table ES.7.	Farm and retail prices and margins of eggs (indigenous and exotic) - \$/egg	11

Country Perspectives on the Poultry Sub-Sector in East Africa - Ethiopia, Kenya, Tanzania, and Uganda

I. Executive Summary

Poultry is important in the economies of the countries in East Africa. In Kenya, poultry contributes 55% to the livestock sector, 30% to the agricultural sector, and 7.8% to Gross Domestic Product (DFID). The poultry sector in Kenya employs two to three million people. Poultry is especially important for income generation for smallholders in the region. Like Kenya, the poultry sector in Ethiopia, Tanzania, and Uganda is similar in varying degrees. In Uganda, smallholders reported that poultry was a high priority in most districts.

II. Demand for Poultry Products

The demand for poultry meat is increasing because of the growth in population and urbanization and increase in per capita disposable incomes (see **Table ES.1.**). Population growth ranges from 2 to 3.4 percent per year and urbanization for several of the countries is estimated over 4 percent. Urban growth will increase over rural growth rates by a factor of two. These two factors alone put pressure on national governments to meet the future food demand for animal protein. Demand for poultry meat is elastic, which means that as the percentage change in quantity of poultry meat on the market increases, the percentage change in the price will be smaller and overall, total revenues to producers will increase.

As personal disposable incomes increase for middle income consumers, then the demand for poultry meat will increase. In Ethiopia, GDP has been as high as 10 percent recently, though it can be volatile. Per capita income in Tanzania has been increasing at an annual rate of 4 percent. Based on increasing disposable income, a larger quantity of poultry meat and eggs is projected to be consumed in the year 2020.

The rising prices of substitute red meat products have been increasing in the region. For example, the price of beef in Addis Ababa has risen so high that normal flows of cattle for export have been diverted to the domestic market. These changes in relative meat prices have a positive impact on the demand for poultry meat. Poultry meat could be the only affordable meat protein for large numbers of consumers in 2020.

Table ES.1. Population and urbanization (millions of people)

	2010	2015	2020	Avg. Growth%
Ethiopia Population	73.000		98.000	2.70- 2.80
Urban	11.680			4.30
Rural	61.320			
Kenya Population	40.650	46.170	51.690	1.20
Urban	9.015	11.126	13.735	4.21
Rural	31.630	35.041	37.956	1.82
Tanzania Population	41.048		52.513	2.04
Urban	10.026			4.20
Rural	31,022			
Uganda Population	33.400		47.690	3.40 – 3.60
Urban	4.525		7.449	5.06
Rural	29.514		39.300	2.77
Regional Total	188.100		249.890	

Sources: multiple sources including CIA.

The per capita consumption of chicken meat varies by country (see **Table ES.2.**). Poultry consumption is low in the four countries compared to the average consumption of 4.5 kg per capita for Africa (website: The Poultry Site). Egg consumption in the region ranges from a high of 69,000 mt in Ethiopia to a low of 14,000 mt in Tanzania.

Table ES.2. Estimated consumption of poultry meat and eggs (2005 – 2008 time period)

	<u>Meat</u>	<u>kg. Per Capita</u>	<u>Eggs</u>	<u>Eggs Per Capita</u>
Ethiopia	46,240 mt	.53 - .60, 2.5, & 2.85	36.624 mt	19
ILRI (2004)	77,000 mt	1.08	69,000 mt	971 g per person
Kenya	24,000 mt	.60	24,000 mt or 1.2 billion eggs	
Tanzania	51,000 mt	1.1 - 1.2	697 -721 million	15 - 17
Uganda	84,000 mt	1.62 -2.50 (187 g of protein/yr)	14,000 mt 56,000 mt	34

Source: Country reports and secondary data from the internet.

Based on human population estimates for the year 2020, poultry meat consumption would have to increase from 376,200 mt in 2010 (2 kg per capita as a rough average estimate) to 1,124,505 mt in 2020 (4.5 kg per capita – African average per capita consumption in 2010). That is a 200 percent increase over the consumption in 2010.

The commercial sector is important in meeting the need for animal protein in East Africa. Though consumers generally prefer the indigenous chicken, commercial breeds grow faster and produce more eggs than chickens under traditional management systems. The growth in demand for poultry meat and eggs from indigenous birds in Kenya, particularly in urban areas, is high. Consumers prefer the taste, texture, and color of the traditional chickens. This type of chicken suits the cooking styles in the region with a strong preference for stewing the meat.

To meet the demand for poultry meat and eggs in 2020, the relative increase (percent change) will need to come from modern, exotic bird breeds which can reach slaughter weight in less than eight weeks, compared to traditional chickens which can take up to one year. Uganda is producing 84,000 mt of poultry meat of which 44,000 mt is broiler meat. By 2020 the country needs to produce 93,380 mt.

The major consumers of traditional poultry meat are households (over 80 percent in some countries), followed by hotels and restaurants. Traditional chickens and eggs are not normally sold in supermarkets. In Ethiopia, consumers do not have a culture of buying dressed poultry but rather prefer live birds which they have slaughtered. In addition, poultry meat is not generally found on the menus on restaurants in Ethiopia, though some processed poultry meat in supermarkets is gradually appearing. The preference has been for red meat. In Uganda, the number of fast food outlets serving chicken is growing.

In summary, the rate of urbanization and rising disposable incomes will cause:

- increased demand for poultry slaughtered under hygienic conditions
- consumers will be willing to pay more for these hygienic slaughtered poultry
- more demand for food-away-from-home outlets
- home consumption of chicken (quantity basis) could fall to less than 70% from 80% currently
- consumers will want the convenience of portion-controlled boneless pieces and chilled or frozen packed chicken parts as women have less time for cooking in urban households

III. Production Systems

With a growing demand for poultry products in the region, production is not keeping pace with population growth. Kenya traders noted that there is a growing demand for poultry and eggs, but they are facing a supply problem and supplies are not reliable. A number of reasons were given for production shortfalls, including weak support services (e.g., market information and regulatory, financial and technical services). There is not a strong commitment by governments to protect the limited resource producers. Producer groups, which might provide services to members, are weak; and cooperatives, associations, and other member groups are ineffective (Tanzania).

A major problem for traditional poultry is the high incidence of disease. Producers expect high mortality during particular months of the year and will prematurely sell off chickens at the first sign of illness. The role of delivery of veterinary services, in all but Ethiopia, has shifted to the private sector. The overall performance of all delivery systems – private or public – is low. Small-scale producers of traditional poultry lack resources to access veterinary care. Community Animal Health Workers (CAHW) function in most countries; but again services can be spotty, especially in remote areas where supervisory vets are few. The production of the I-2 vaccine in Tanzania is reported to have improved the control of Newcastle Disease (ND), which is a major killer of poultry. No information is currently available of the widespread use in the other three countries.

The implication for the region is that producers of traditional poultry will need to organize into groups to achieve a larger scale of operation, for example a flock of 50 hens. With larger flock size, producers will have to invest in better housing, upgrade from scavenger to some addition of feed and regular health care. A loose group formation would allow individual producers to better manage larger flocks, especially for animal health services, such as signing a contract with a veterinarian for regular treatment of their chickens.

The second implication is that larger traditional producers could engage in small-broiler operations. These producers would be linked to a nucleus firm (supplier of DOCs, feed, medicine and vet care) and at the time of sale the nucleus company would purchase all the broilers and then restock the farmer. This business model would be better suited to Uganda and Kenya, where commercial poultry is more established.

Poultry inventories

The estimates for the national poultry flocks can vary as seen in **Table ES.3**. In general, the data indicates that the four countries have similar size and composition of traditional poultry. On a per capita basis, Ethiopia has the smallest poultry flocks as well as probably the smallest commercial poultry industry. Kenya and Uganda have a more developed commercial poultry industry with several allied industries supporting the sub-sector: feed, animal health and marketing.

	Total Chickens	Indigenous Poultry	Broilers	Layers	Other (duck, turkey, guinea fowl)
Ethiopia	34.2 million – 42 million Avg. = 38 million	94% - 98% 90%	2.8%		
Kenya	37.3 million	84%	5.7%	8.3%	1.7%
Tanzania	41.0 million	94.7%	.589 million (2003) 1.7%	2.41million (2003) 3.6%	
Uganda	37.4 million 32.5 million (2006) Avg.= 35 million	32.8 million 27.4 million (2006)	1.442 to 1.536 million (appx. 4%)		

Meat and egg production

Poultry meat production varies across the four countries and differs between meat and egg production. Kenya has the lowest per capita production of chicken meat but one of the highest in egg production. Tanzania has the lowest per capita production of eggs but is the second highest producer of chicken meat per capita. The amount of Uganda's cereal production, in combination with the smallest population, means the country can be a net exporter of maize and poultry. Uganda has the best potential to expand its chicken industry.

	Meat Production	Meat Production per Capita	Egg Production	Egg Production per Capita
Ethiopia	46,240 - 54,000 mt 38 million chickens slaughtered	.68 kg per capita	36,000 mt = 2.1 billion eggs	29 eggs per capita
Kenya	22,000 mt of which 8,600 mt from commercial with value of Ksh 3.6 billion	.54 kg per capita	81,000 mt in 2009; 1.2 - 1.6 billion eggs value Ksh9.7 billion	35 eggs per capita
Tanzania	51,000 mt - 53,600 mt	1.27 kg per capita	721 million eggs	18 eggs per capita
Uganda	44,000 mt - 84,000 mt 44,000 mt in 2008 53,000 mt in 2002	1.92 kg per capita	56,000 mt = 1.12 billion	34 eggs per capita

Production areas

The factors affecting the location of the commercial industry in each country are similar. They tend to be clustered near to cereal and pulses production areas as well as near to major population zones. The Eastern Province (around the towns of Machakos, Kitui, Matuu, Makueni, Yatta and Tala) in Kenya is a major source of traditional chickens; the area is near the Nairobi market. The Central Region in Uganda is near Kampala. The Debre Zeit area in Ethiopia is near to Addis Ababa. The Dar es Salaam, Coast, Tana, Arusha and Kilimanjaro regions in Tanzania are near the cities of Dar es Salaam, Arusha and Tana.

For traditional poultry, smallholders are scattered throughout the urban, peri-urban, and rural areas. In the pastoral areas of East Africa, there are fewer numbers of chickens, as households can be in a state of flux, there is less cereal production, and chickens are better suited to sedentary lifestyles. (This is likely to hold true in pastoral areas of Tanzania and Uganda). Ethiopia's traditional poultry are more centralized in the highlands encompassing Oromiyo, Amhara, SNNPR, and Tigray, where there are more crop by-products for scavenger poultry systems. Tigray is reported to have the highest concentration of households keeping poultry (66%).

Over the next ten years, further concentration of poultry operations in these areas will occur for firms to gain operating efficiencies through input supply networks. Growth in the number of outgrower schemes by commercial firms will emerge if production and marketing contracts become enforceable in the court of law.

Poultry Systems

The Food and Agriculture Organization (FAO) has four categories for poultry operations. Category 1 is for the largest operations with developed bio-secure systems. Category 4 is for backyard operations with scavenger feed and no bio-security.

Traditional – village systems

The traditional poultry systems (FAO's Category 4) are similar throughout the region. The number of birds per households is low in the East Africa region, anywhere from 5 to 15 adult birds per household. The Tanzanian estimate is average ownership of 10 birds. Ethiopia estimates are much lower, averaging 2 – 4 adult hens, one cockerel, and a number of growers. (This likely holds true for Kenya and Uganda). The average flock is seven to ten birds per household.

Poultry are free range with contact with other birds outside the house. Most birds are scavengers and receive some grain occasionally. Household flocks size has seasonal fluctuations due to die offs from diseases. The primary cause for high mortality in poultry is Newcastle Disease (ND). Household do not invest in their poultry because chickens are not viewed as important in the household economy, partly because of the high risk of mortality with the possible complete loss of the flock.

Breeding and care. The Tanzania country reported that the GOT experimented with the introduction of Rhode Island Red chickens to be crossed with indigenous chicken. The program has been lackluster in its impact. In Uganda, discussions between the GOT and breeders of improved cockerels produced in India have occurred, but the status on this program is not known. Poultry experts believe that cross-breeding is not advisable; rather, producers should focus on managing hens to improve their productivity by early weaning and better chick management. In Tanzania, a hen will produce 6 to 20 eggs per year but chick mortality can be high – from 30% to 80% per year.

Housing. One of the limiting factors in increasing productivity in traditional poultry is adequate housing. Chickens will roost in trees, kitchens, courtyards and in rudimentary houses. Poor housing conditions are a major contributing factor to parasites and diseases. Producers lack the knowledge about appropriate styles of inexpensive housing. A program to make credit accessible to producers for housing would be important.

Animal health. The rate of mortality is high caused mainly by Newcastle Disease. ND can kill up to 75% of chickens. Other diseases include chicken pox, fowl typhoid, coccidiosis and coryza. Producers do not invest heavily in animal drugs for their poultry. In general, disease surveillance is weak, and producers lack access to diagnosis and treatment. Bird mortality is high at the start of the rainy season, and producers like to sell off their marketable poultry at this time, and unfortunately, this is the time when prices for their poultry are low. Producers will want to have birds vaccinated before this season.

The GOT supported the introduction of the I-2 vaccine against ND. The vaccine is manufactured locally, and it is thermo-tolerant for up to two weeks. The medicine is administered in the eye and sold in vials of 100 and 1000 doses. The I-2 is available in other countries in the region, and large-scale vaccination programs administering the I-2 is possible. The cost per dosage is low at \$.03 in Tanzania with packaging in 100 dose vials, which is suited for village small-scale poultry operations. The cold chain is still a problem for other animal health vaccines.

Extension services. Common across all four countries is the lack of advisory services available to traditional poultry producers. Government reforms in Tanzania shifted the national agricultural agency to focus on regulatory issues and control of diseases. District councils must now deliver animal health service, but they lack the resources to do it. Local offices need technical and community outreach training. Producers lack access to information on “best practices” for village poultry operations and also lack opportunities to build business skills. The public sector extension service has been eliminated without the development of new models that include public-private partnerships.

Reason for keeping poultry. In rural households, poultry are kept more as a secondary activity for supplemental income and are a small percent of household assets. This results in low investment levels in poultry. When compared to other household activities, poultry are seen as high risk with low returns, mainly due to diseases. Growth in the family flock can be erratic during the year. In Ethiopia, it was reported that chickens are important in cultural events and festivals. Women and children are the main caretakers of poultry. In Tanzania, women and children care for poultry, and men build the houses and the cages. In Kenya and Uganda women can own chickens and have control over all business decisions. This is believed to be similar in Kenya. Poultry are an important source of income for rural women.

Summary. An opportunity exists to construct business models for village poultry producers showing that implementing a package of improvements can result in increased flock size and financial benefits to the household.

Commercial systems

Each country has a small number of large commercial growers that have good bio-security, fully integrated (own slaughter, packing and distribution) and linked to the commercial market (FAO Category 1 and 2). These commercial operations tend to be around peri-urban areas. Women in Uganda are engaged in small commercial operations (category 3, 100 – 500 chickens). In Kenya, KenChick and several others lead the market. The growth in layer production has been greater than broiler. Tanzania has three companies out of ten in the country that are industry leaders. Many of the commercial poultry farms in Ethiopia closed in 2006 and been unable to reopen. Three significant farms remain (ELFORA, Alema Farms, and Genesis), all around the Debre Zeit area and Addis Ababa. ELFORA supplies 420,000 broiler chickens and 34 million eggs each year. Alema supplies 250,000 broilers, and it has a fully integrated production, processing, and marketing operation. Genesis Farms has 10,000 layers, as well as its own parent stock and hatchery, and is a commercial feed supplier. In Uganda, UgaChick is the recognized leader and progressive in its marketing plan. It is estimated that 70% of broilers come from medium operations with 500 to 5,000 birds. There are only three firms with over 5,000 birds. In Tanzania, there are approximately 400 poultry farms keeping 456,000 birds, of which 22,000 were indigenous chickens, 312,043 were layers and 241,000 were broilers.

Hatcheries and day old chicks (DOCs). DOCs are important to the ability of commercial firms to maintain production. All four countries rely on DOCs as well as ETH to varying degrees of importance. With the outbreak of Avian Influenza, the supply of DOCs was affected. Ethiopia imports around one million DOCs annually, with 80% to commercial farms and the rest to seven multiplication farms operated by the GOE. Only 5% go to backyard operators. The multiplication centers in Ethiopia are not very effective, producing 1.2 million broiler chicks and .5 million pullets annually. In Uganda, there are 13 commercial hatcheries with a capacity of 510,000 eggs per week. The largest is UgaChick, producing 90,000 DOCs per week. The industry is producing approximately 217,000, which is 50% of capacity. Supply of DOCs is stabilizing but is still inadequate for the size of the national poultry flock. Supplies of DOCs can be irregular and inexpensive. The cost of a broiler chick is \$.75, and the cost of the layer – pullet chick is higher at \$1.23 - \$1.50. These large commercial companies are importing DOCs for replacement of parent stock for producing broilers and layers. The value of DOCs in Uganda is estimated at US\$ 1.25 million per year.

Feeds and feeding. In commercial systems, the cost of feed is the largest contributor to cost of chicken and eggs. Most of these companies will purchase and mix their own feed and may sell feed to others, especially if the company is selling DOC to growers who then sell finished birds back to the company for slaughter. There are feed mills in each country, but issues are present on the consistency of the quality and the ingredients in the feed. Government oversight of the feed mills is seen as a weak link in the improvement of the industry.

Veterinary services. Veterinary services in general are not able to effectively support poultry smallholders. For example, where the veterinary services have been liberalized, as in Tanzania, and there are input dealers located in urban centers. Commercial poultry companies may have their own veterinarians on staff or on retainer to monitor and treat animal diseases. These companies will also have poultry specialist who manage the nutrition, production, and sales of the chickens and eggs. Producers in Tanzania mentioned the high price for vet drugs. Producers complain about the quality of veterinary drugs and their high prices. Diseases are not managed along the supply chain. Producers sell at first sign of illness. The Ethiopian government is opening new veterinary schools to better service the livestock sector in the future.

Cost of production. In general, business analysis skills in costing and gross margin analysis to determine costs of production are lacking. In Uganda, cost of production (COP) for broilers at 40 to 45 days is \$1.86 (US\$ 4200). Spent hens sold at the gate for \$2.30 to \$3.00 per bird. Consumers like the dark meat and the tougher texture.

Commercial - contract systems. Some hatcheries and feed companies have contract grow-out programs with sell back of birds for slaughter. Ugachick has four outgrowers buying 1,000 broiler chicks per week and eight farmers buying 5,000 broilers per week.

Summary. Over the next ten years, the commercial industry will probably grow faster on a percentage basis than will traditional poultry unless there are effective programs to assist small-scale farmers.

Animal feed industry

The animal feed industry plays an important role in the development of the poultry sub-sector. Stakeholders interviewed stated that the high cost of feed was hurting their businesses. The studies indicate a general lack of quality of feedstuffs for poultry. There needs to be more testing of feed as to the composition of ingredients.

East Africa is a region where humans and livestock compete for domestic supplies of cereals, making it difficult to shift cereal production away food to feed. The prices for maize show that prices vary across the region allowing for trade in an important crop. Uganda is a low price country for maize and surplus maize is exported to Kenya (see **Table ES.5**). Kenya has recently allowed the important of yellow maize for the feed industry.

Table ES.5. Comparative prices for maize (\$/mt)

City/ Country	Nairobi, Kenya	Dar Tanzania	Addis Ethiopia	Kampala, Uganda
Sept. 2010	US\$ 210	US\$ 200	US\$ 160	US\$ 130

Source: Internet

Uganda produces all the necessary feed ingredients (maize, sunflower, cotton, rice, wheat and soybeans), but there is not enough quantity. Uganda uses local commodities, and these crops are exported to Kenya, Rwanda, Sudan, and the Democratic Republic of Congo (DRC). There is not enough maize bran because of corn use direct for human food. Uganda feed mills mainly use by-products from the processing of wheat and maize into flour as major source of energy; fish meal and soybeans are mainly used for protein while some cottonseed cake and sunflower cake are also used. Feed standards have to be displayed on the bag in Uganda. There are 70 small-scale feed mills in Uganda which are not mechanized. There is a need for better technology. Current production is 80,000 mt of which 85% is for poultry and utilization of capacity is only 40 – 45%.

Most feed mills in the region face the problems of inconsistent power supply and the high utility costs. Ration costs can be high because of this. Qualified technical staff and lab facilities are a limiting factor, and there is not a feed company mixing a low-cost ration that could be targeted to the traditional poultry producer. Indigenous poultry would only get some cereals: maize, sorghum

and millet at crop harvest time. There is a need for feed quality standards established by the industry and regular inspection of feed mills, their capacity and weaknesses. The feed industry is important if the poultry sub-sector is going to expand and meet the challenges in 2010.

Capital and credit

A general constraint throughout the region is that producers face difficulty in obtaining credit for purchasing equipment and operating expenses (e.g. drugs, feed and DOCs). There is a lack of financial institutions in rural areas; producers have to rely on their own capital, from relatives or microfinance organizations. Producers also lack the financial skills to borrow effectively. In Tanzania, it was mentioned that producers find it hard to meet collateral and credit conditions. To stimulate the poultry sub-sector in Uganda, the GOU made Ugx 30 billion available, but small farmers and manufactures found it hard to access the credit lines. Loans are hard to access because of the poor culture of repayment. High interest loans to cover risk and administrative charges.

IV. Markets and Marketing

Egg sales are the same, but there are more women and children selling eggs. Collector gathers eggs and chickens from villages and transport in cages made of wood and bamboo.

Rural producers with small flocks mostly sell to traders who aggregate supply over a large number of farms. In Kenya, despite GOK regulations that require ante and post mortem inspection, the majority of poultry consumed in urban markets are processed outside of authorized slaughterhouses and away from inspection services. Consumers who travel to live bird markets prefer to select indigenous birds and have them slaughtered and plucked immediately. These birds generally average less than 800 grams at slaughter. Many birds are slaughtered and processed on-farm, especially “spent hens” from layer operations.

Transportation of live birds to markets often occurs over long distances in unsanitary and inhumane arrangements, in densely packed baskets or tied to the roof of a tax-van. Often, these birds are held in markets for two or more days without feed and water. Such treatment results in bruising, loss of body mass and high death rates. Mixing of birds from different farms and regions and birds with other animal species creates a significant threat for disease spread, including HPAI.

Regional trade

There is trade in live poultry and meat products in the region. Ethiopia has the least amount of trade, with only some reference of poultry meat being shipped to Djibouti by one firm in Mojo shipping 159 mt, but the trade was not sustainable. Ethiopia would seem to be a potential importer of poultry in the foreseeable future to the Middle East, but the industry lacks the standards to meet importers’ requirements. Kenya’s market seems to take all the poultry produced at this time. KenChick is an integrated company active in processed meats and this might be an area for trade in Kenyan poultry. Tanzania does export live chickens into Kenya according to the country report. The volume of exports is not known but likely flows from the production area around Arusha and Kilimanjaro. Uganda has more of a commercial orientation with a number of hatcheries producing DOC for the domestic and regional market. Uganda exported an estimated 130 mt of hatching eggs in 2005. There is an unmet demand for DOC. Ugachick is important player in processing chilled and frozen poultry, turkey, and some ducks. These items are finding a growing market in Uganda as well as in Kenya, Rwanda, Burundi and Tanzania. Most poultry exports are to Kenya and South Sudan.

All of the countries in the region import DOC and eggs to hatch (ETH). These imports are important to the development of the commercial industry. Many of the fertilized eggs are for maintaining parent stock for producing broiler and layer DOC. There is possibly some trade in table eggs for consumption, but the extent of this trade is not known. Uganda likely exports table eggs to South Sudan and a few of the other neighbors. Per capita income has been increasing in the DRC, South Sudan, Rwanda, and Burundi, which would increase the demand for poultry and eggs. Ethiopia has

been an importer of bird eggs, egg yolks, turkey meat, and offal, from recent data from China, Italy, Japan and Malaysia.

Summary. The opportunity for the increase in regional trade has the potential to improve the economic welfare of both poultry producers as well as consumers of poultry products. Any attempt to distort trade will result in less economic impact.

Market channels

Small egg and broiler producers individually lack the volume of supply necessary to make it worthwhile to carry their products directly to markets. They generally sell their eggs and live birds to traders at farm gate. Traders aggregate supply at farm gate and move it to markets in and around the major cities. Prices paid to producers are generally considered too low relative to consumer prices. However, there is a lack of specific cost of production and marketing information to evaluate how costs and returns are apportioned along the supply chain. Kenyan, Ugandan, and Tanzanian consumers almost universally prefer the meat and eggs of indigenous chickens to that of “hybrids.” As a result, significant opportunity exists for increased capture of value for backyard producers of indigenous chickens. The preference of consumers for eggs and meat from indigenous chickens is a promising niche or focus for linkage of smallholder producers into production and marketing organizations.

As demand for poultry products increases in the region, smallholders can benefit, but addressing the inefficiencies in production and marketing systems and risks to poultry-source food safety must occur if the above emerging market niche is to be served.

Traditional poultry and eggs

It is difficult to add value in the value chain for traditional poultry because of the small scale of operations. Economies of size are not easy to realize so that costs per unit can be higher than compared to the commercial producers. Furthermore, small-scale producers do not invest in poultry to the extent they do in their agricultural activities.

The market channels for poultry are consistent across countries with traditional producers consuming chickens and eggs (but not in large amounts), selling chickens to other households in the village, slaughtered for ceremonies and festivities, and sold for cash for household needs and in some cases sold to purchase other livestock – sheep and goats. Producers in general have a number of outlets for their poultry. In Uganda, small-scale farmers sell 80% of their production direct to consumers and 20% to live bird markets with no bio-security. Women are mainly responsible for the sale of poultry unless the village market is some distance from house. Eggs from traditional poultry are not sold in large quantities; they are kept for hatching. Marketing of traditional eggs can be poor, with unhygienic standards for traditional eggs. Village traders may handle 50 birds per week in Tanzania.

Rural (primary) markets. A larger rural market links to several villages markets (held on designated days of the week). The rural market may operate only once or twice a week. Collectors of poultry from villages would bring all types of poultry to this market. Traders would visit the market to purchase and pack in cages for transport to larger secondary markets which would be in towns. In Uganda, every sub-county has a weekly market where farmers can sell their poultry. Uganda has a number of markets at the sub-county level as well as road side markets.

In Tanzania, primary market traders in the markets are buying and reselling to consumers or wholesale buyers from larger markets which sell to retailers or export to Kenya. These traders handle 150 birds per week and 50 trays of eggs.

Secondary markets. Secondary markets would have infrastructure of sheds and permanent cages with traders full-time in the market. These traders would have networks of collectors who are purchasing from rural markets. The number of birds on hand would increase and vary by number.

Wholesale traders in Tanzania were reported to handle 500 poultry and 100 trays of eggs per week. These traders move products longer distances.

Terminal markets. Markets for poultry are in urban centers or peri-urban areas. Consumers would include individual households, restaurants, hotels and other institutions. In Kenya, direct sales to consumers constituted 82% of the sales in these markets. Key terminal markets in Ethiopia are Hawassa in SNNPR, Bahir Dar in North Amhara Region, Mekele in Tigray and around Addis Ababa in Shola, Mercato and Saris Market. Shola has 90% of sales and have 50 traders in the market of which 10 are large with 1000 bir per day in sales. Small traders sell about 50 birds per day. In Ethiopia, a large number of birds slaughtered go to supermarkets, restaurants, and hotels. Sellers prefer to have hotels and others who have regular orders to purchase chickens. Bird slaughter also occurs in these markets, and hygienic conditions are generally poor without proper waste disposal. Roasters of chickens in towns are a growing business in Kampala as well as alongside roads are important in larger cities like Kampala. There is no grading or standards for birds and no weigh machines to benefit consumers in their purchasing decisions. In Kenya, market outlets are direct to customers (80%), hotels, traders and institutions. Hotels took more volume, which allowed for turnover of product. Women in Kenya are active in trading poultry with mostly small size of operations with 40 to 150 chickens in cages

An objective is to modernize and shorten the supply chain to reduce costs, inefficiencies and lower the high death losses from stress and diseases. Because chickens are exchanged several times, the handling will result in early deterioration of the animal, especially during the hot season. Attention needs to be given to proper collection, holding, and transport of poultry. Eggs from traditional chickens have a short shelf life and quality of eggs can be low. Traders lack the capital and skills to improve their marketing practices. In some markets, there are traders associations that can serve as a way to introduce improved marketing concepts.

Commercial poultry

The larger commercial chicken and egg producers sell at the farm gate, to wholesalers or have direct outlets off the farm. Producers sell spent hens at the farm, to traders in the live market, and to some supermarkets. Processing of chicken into parts is done by only a few commercial operations. The preference is still for consumers to buy live birds over processed meat.

Kenya has one of the more developed commercial industries, with producer associations (AKEFEMA) and other institutions supporting the industry, including: KEPOFA, KEBS, private labs (ANALABS, ABS-TCM) processors, KARI, universities, Tegemeo Institute of Egerton University, Ministry of Livestock, Division of Veterinary Services (DVS) and food retailers (Nakumatt, Uchumi).

Value chain (VC) mapping

Each country report provides some description of the poultry value chains. The VC maps are similar in that traditional poultry has a “long” supply chain with a number of actors while the commercial poultry has a shorter chain with fewer intermediaries. Consequently, with many actors in the traditional poultry chain, farm-retail margins are going to be larger because of the added costs at each intermediary point.

Price margins for poultry and eggs

The margin between the farm gate price and the retail price to consumers varies across the four countries. Where the data is available, a cross-section of prices for broiler and indigenous chickens are reported.

The reported farm gate prices for indigenous chickens ranged from a low of \$3.85 per bird in Ethiopia to a high of \$4.50 in Uganda. The retail prices followed the same pattern with the highest price for a local medium-size bird was \$ 7.50 per bird in Uganda. The retail price for exotic broilers can be 25% less than indigenous chickens in the market. The farm to retail margin was over 40% in

every country for traditional chickens. Given the high mortality rate for poultry through the local supply channels, costs would be high to traders. The price for broilers is less than indigenous birds at both the farm and retail levels in Tanzania and Uganda.

	Ethiopia – Indigenous	Kenya – Indigenous	Tanzania - Indigenous	Uganda - Indigenous	Tanzania – Broiler	Uganda - Broiler
Farm gate	\$3.85	\$ 4.37	\$ 4.03	\$ 4.50	\$ 2.35	\$ 3.00
Retail	\$5.38	\$ 6.11	\$ 6.71	\$ 7.50	\$ 3.02	\$ 5.00
Margin	\$1.53	\$ 1.74	\$ 2.68	\$ 3.00	\$.66	\$ 2.00
% mark-up	40 %	40 %	67 %	67 %	28 %	67 %

The farm gate price for table eggs is in a narrow band of \$.07 to \$.13 per egg. Tanzania has the highest retail price for indigenous eggs with a large mark-up of 100%. Egg prices were the lowest in Uganda. Quality standards for eggs are not set so there can a wide variation in number of eggs eaten. There is a general lack of quality control in marketing eggs.

	Kenya – Indigenous	Tanzania - Indigenous	Ethiopia – Indigenous	Ethiopia - Layer	Tanzania – Layer	Uganda - Layer
Farm gate	\$.12	\$.10	\$.08	\$.09	\$.13	\$.07
Retail	\$.17	\$.20	\$.10	\$.12	\$.17	\$.10
Margin	\$.05	\$.10	\$.02	\$.03	\$.04	\$.03
% mark-up	43 %	100 %	25 %	33 %	31 %	43 %

Market windows

The peak season for sale of poultry is at the time of the rainy season when diseases start to appear and mortality rates increase. This is not the time when market prices are at their highest level. This is likely to be generally similar throughout the region.

Ethiopia. During the rainy season in Ethiopia (June through August), prices fall. In September when there are more religious feasts then prices begin to rise. Prices decline in October/November and again rise in December, as well as, in April for both eggs and poultry. Ethiopia has a number of fasting days, thus impacting the consumption of meat and eggs.

Kenya. The peak period of demand for eggs is different than for poultry; variations are due to timing of festivals, school holidays, and the wage earnings of customers. Two high demand periods for indigenous eggs are March-April and August-September. Supply and demand for indigenous eggs is lowest in December and January. The highest demand period for indigenous chickens is in December. Some businesses are beginning to add market value by dressing chickens, providing delivery services, and packaging of cut-up chickens.

V. Processing and Distribution

A similarity across all countries is the reported lack of hygienic slaughter facilities for indigenous poultry. Slaughter areas are in public markets which can be congested with people and animals on market day. Both women and men are engaged in the slaughter and cleaning of chickens. The hygienic conditions are poor and contribute to the risk of diseases passing from poultry to humans. Improvement in the slaughtering, processing and retailing of chicken meat will occur over time in urban areas driven by the consumers demanding and willing to pay for better services. This is an opportunity for innovative investors wanting to build a market for their products.

Each country has a few private commercial slaughter facilities. These firms are generally integrated from production to final wholesale or retail of their products. In Tanzania, there are four commercial facilities in Kibaha (Mkuza Poultry Farm and Golden Chick), Dar es Salaam (Interchick) and Morogoro (Pride Meat). There are no slaughter facilities for traditional chickens. A few meat processors supply supermarkets, hotels, and restaurants. Ethiopia has three firms; the largest is El Fora. KenChick in Kenya is the largest integrated company, and UgaChick in Uganda is the dominant firm supplying supermarkets and shops in Kampala.

VI. Development Programs

Each country has benefited from development programs to address the constraints facing the poultry industry. The greatest efforts in the region have come from the international funded campaigns against the spread of High Pathogenic Avian Influenza (HPAI).

Ethiopia

Under PASDEP, the GOE stimulated the poultry industry with tax free imports of machinery and tax holidays on poultry exports. The GOE is providing inspection and quarantine of DOCs and providing ND vaccine free of charge. The AHIP project plans to install surveillance and diagnostic capacity to respond to outbreaks. The project will end soon.

Kenya

Partnership for Safe Poultry in Kenya (PSPK) is an initiative of USAID being implemented by Winrock International. The goal of the USAID-funded Partnership for Safe Poultry in Kenya (PSPK) project is to promote safe poultry production and marketing systems that incorporate freedom from highly pathogenic avian influenza (HPAI) and other diseases and ultimately generate income and improve nutrition for smallholder families.

PSPK contributes to USAID's goals for food security, economic growth, and health by:

- Enabling food insecure families to increase incomes and diversify diets through poultry production
- Increasing poultry sector productivity and access to safe poultry products which serve as an important source of protein and iron for rural households
- Targeting women (as primary poultry producers) and thereby supporting their role in facilitating food security and nutrition for the whole household
- Addressing USAID/Health priorities for avian and pandemic influenza (API), including: improving country-level planning and preparedness, increasing public awareness, and helping countries manage outbreak response and implement improved biosecurity practices

PSPK uses an integrated approach which links poultry sector stakeholders with experienced experts from the U.S. and East Africa. These experts provide volunteer technical assistance to address constraints and opportunities for poultry sector development in Kenya and across the overall East Africa region. Fifty-eight percent of the project's target group are women.

Tanzania

The Southern Africa Newcastle Disease Control Project (2002 – 2005) had good success working with local governments on extension and ND control. The program introduced I-2 wet vaccine against ND. The GOT has improved its vaccine production of I-2 and produced 14.5 million doses in 2006. Working with Welcome Trust and University of California Davis, Sokoine University of Agriculture initiated a program in seven districts using community development workers to introduce the I-2 vaccine. In Tana Region a project worked in 31 villages with 4,617 households in poultry improvement and disease control. These programs have been effective. The Government of Tanzania has tried improved cross-breeding programs using the Rhode Island Red, but the efforts have not been encouraging.

Uganda

Uganda has a Plan for Modernization of Agriculture (PMA), which has seven pillars, including the National Agricultural Advisory Services (NAADS), which supports poultry production. Its mandate is to contribute to increased household incomes, contribute to food security and enhance commercialization of agricultural production (intensification and profitability.) NAADS supports the Uganda Poultry Farmers Association. SPINAP – AHI, \$800,000 and ended in Dec. 2009. The Avian Influenza Preparedness and Response Project (AHIP) includes \$10 million in credits and \$2 million in grants. It ends in 2010.

VII. Policy Environment

Several countries have enacted policies to strengthen their livestock and meat sub-sectors. The legal system is consistently weak in all four countries in regard to honoring contracts. Supply contracts could improve the marketing system. Tanzania has enacted several policies to strengthen its agricultural sector. The difficulty is to implement these policies to the benefit of the industry.

Each country has regulations on poultry meat and edible offal and eggs and different import duties on products (Uganda is 25%). Poultry equipment may or may not be taxed, and this goes for spare parts for machinery and plants remission. A consistent policy on VAT and other taxes would help the commercial industry to expand and modernize.

The government institutions in each country with assistance from the regional trade groups (EAC, COMESA, IGAD) have an opportunity to enhance trade in DOC, ETH, chickens, and table eggs. Over the next ten years, total accumulated net benefits would be significant to producers, distributors, processors and consumers.

VIII. Recommendations

The overall goal for the poultry industry in East Africa is to develop a sustainable and stable poultry sub-sector to meet the growing demand for poultry products to the year 2020. This will be partly driven by increasing urbanization; the largest cities in Africa are in the East Africa region. Poultry offers an opportunity for rural employment and poverty alleviation targeted to the rising demand for affordable animal protein.

Traditional poultry systems

Traditional poultry producers can benefit from strategies to help improve productivity (feed, housing, health and credit) and marketing (linkage to markets). Producers need technical assistance in better management to reduce mortalities. Producer associations for procurement of inputs and marketing of outputs would improve household livelihoods for a large number of beneficiaries.

Large scale animal health programs to eliminate ND in specific areas offers large payoff to poultry producers. This would improve the efficiency and productivity for small scale traditional poultry. The aim is to move the traditional poultry activities toward more commercialization. Rural households would keep larger flocks of traditional chickens; the objective is to increase an average flock size of 10 to 25 to 50 chickens. The business models for these operations are needed to determine the minimum investment needed in housing, feed, medicine and marketing and the size of investment needed to achieve certain production targets by 2015 and then 2020.

Each country in the region lacks the necessary market infrastructure that supports a progressive and expanding poultry sub-sector for both the traditional and commercial systems. High levels of inefficiencies are present, with small volumes of chickens marketed with high rates of weight loss and death. Better information is needed on cost of necessary investments for different systems of production requiring varying levels of management.

Poultry farmers require better links to markets for more efficient procurement of inputs and delivery of services e.g. technical training and feed and health inputs. By better linking farmers to markets, producers receive better prices for their chickens and eggs. This also opens up opportunities for contracting with traders and processors. These arrangements allow for introduction of quality standards to guide producers in meeting market requirements. Producers would also have better information on the types of birds of certain age, size, and condition for which the market is willing to pay a premium price.

Producers, traders, and retailers require better support services, such as credit, to better perform in the market. Farmers linked to the market will reduce poverty. The handling and processing of traditional poultry in general lacks proper hygiene which negatively impacts the demand of consumers. Market facilities, e.g. slaughter and processing facilities, will become more important in the future as the urban population continues to grow. These improvements will also create additional jobs in the poultry sub-sector.

Opportunities to effective delivery services will necessitate that farmers are organized into groups. This will allow for private sector companies to deliver inputs and technical services economically. Groups of farmers can also identify market niches and deliver products in a timely manner, even with the use of contracts. Market information can be provided to groups cost effectively using cell phones and other technologies. The collection and dissemination of information could be on a country and regional basis.

Commercial poultry systems

Commercial poultry production can coexist with the traditional system in the region. Both systems will have to expand to meet demand for poultry in 2020. There are synergies between the two systems of the sub-sector, but they have not been exploited.

Feed will continue to be a major issue for commercial producers. Feed costs are approximately 60 to 70 percent of the cost of a broiler and egg production. The feed industries in all four countries will need to modernize to produce competitively priced feed. A set of harmonized feed laws and regulations across the region would actually benefit the trade in animal feed. Even a low cost feed for traditional poultry would serve traditional producers with 50 birds or more.

Hatcheries in the region can be improved to better serve both the domestic, as well as export market opportunities. Utilization of existing hatchery capacity needs to improve, and hatchery management training is recommended. The current supply of DOCs does not meet forecasted demand for poultry meat and eggs in the future. Domestic production of DOCs reduces the potential for the spread of AI and other diseases.

The advancement of the I-2 vaccine produced in the region is a positive step in the development of the industry. The distribution of vaccine to traditional poultry producers through private veterinarians, CAHW, and other extension channels still remains a challenge, but countries in the region are boosting their capacity in veterinary sciences and technicians. In Ethiopia, several new veterinary schools have opened or plan to open in the near future. Other private sector-led models for disease control need to be tested. One possibility is for a poultry producer group to sign an annual contract with a veterinarian for all its animal health services.

Leaders in the commercial sector can play an important role setting a vision for the industry. These leaders can be the champions for improvements in the poultry value chain. Collectors, traders, and market agents can have a positive influence in improving the supply chain. The availability of credit and use of contracts would benefit this group of stakeholders.

Policy framework

Governments of all four countries have a shared interest to improve the policy environment for the poultry sub-sector. The immense untapped potential of the sub-sector could be realized if policies

were supportive and harmonized for the region. Trade is occurring in the region in poultry products and gains from increased trade would have large economic benefits. A regional poultry forum would be a venue to initiate the dialogue for a coordinated regional approach to disease control, standards, and market access. These are issues of importance that cross national borders.

Presently, all four countries must deal with environmental and climate change issues involving the livestock and meat sector and poverty reduction. Poultry offers a unique opportunity in addressing these challenges. The policy dialogue can occur in public forums to address environmental, trade, investment, and regulatory issues in the poultry sub-sector. Governments, with the help of external donors, can help to strengthen national poultry associations to have a voice in this dialogue.

Citation for Executive Summary

Omiti, John and Sam Okute. “An Overview of the Poultry Sector and Status of Highly Pathogenic Avian Influenza in Kenya – A Background Paper”. DFID, ILRI, et al. Africa/Indonesia Working Paper No. 4.