

# Poultry sector country review



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# Foreword

The unprecedented widespread outbreaks of Highly Pathogenic Avian Influenza (HPAI) that occurred in many countries in Asia, Europe and Africa since 2003 have been asking for rapid and active response on a national, regional and international level. The HPAI crisis had to be addressed worldwide at the source, which is the poultry population.

The main danger of this disease, like others, lies in the way in which humans interact with and handle the production, distribution, processing and marketing of live poultry and poultry products. The direct and indirect socio-cultural and economic impacts of disease outbreaks influence policy measures and disturb markets, causing the loss of assets. There are strong negative impacts on the livelihoods of rural communities for all producer groups including small holders. Assessment and guidance on measures along the poultry chain for a safe poultry production is therefore of great importance. Specific consideration should be given to strategies and measures that ensure a sustainable pro poor supporting approach and development.

Better understanding of the specific situations of the different poultry sectors and the related market chains will help to develop appropriate disease control measures and improve biosecurity.

This review is part of a series of Country Reviews that are commissioned by the Animal Production Service (AGAP) of the Food and Agriculture Organization of the United Nations (FAO) for the Socio-Economics, Production & Biodiversity Unit of the Emergency Centre for Transboundary Animal Disease of FAO (ECTAD).

This review is intended as a resource document for those seeking information on the poultry sector at national level. It is not exhaustive. Some topics are only partially covered or not covered at all and the document will be supplemented and updated on an ongoing basis. Contributions and feedback are welcome by the author(s), FAO/AGAP and FAO/ECTAD Socio-Economics, Production & Biodiversity Unit<sup>1</sup>.

This sector review was prepared by M. Tharcisse Sebushahu. Information collected was supplemented with data from the FAO statistical database (FAOSTAT), the World Bank and the United Nations Population Division.

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<sup>1</sup> For more information visit the FAO website at: [www.fao.org/avianflu/en/farmingsystems.html](http://www.fao.org/avianflu/en/farmingsystems.html) or contact either Philippe Ankers or Olaf Thieme, Animal Production Officers Email: [Philippe.Ankers@fao.org](mailto:Philippe.Ankers@fao.org) and [Olaf.Thieme@fao.org](mailto:Olaf.Thieme@fao.org) Food and Agriculture Organisation, Animal Health and Production, Viale delle Terme di Caracalla, 00153 Rome, Italy.

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## Acronyms and abbreviations

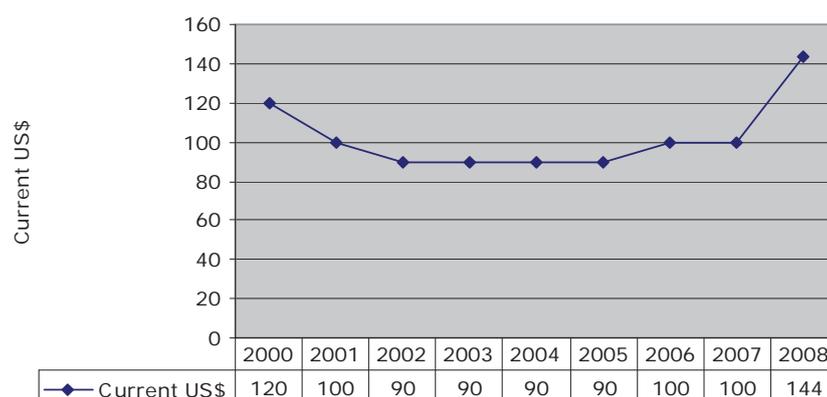
ASF	African Swine fever
BRB	Banque de la République du Burundi (Bank of the Republic of Burundi)
CBPP	Contagious Bovine Pleuropneumonia
CSLP	Cadre Stratégique de Lutte contre la Pauvreté (Strategic frame for the poverty alleviation)
DGMAVA	Direction Générale de la Mobilisation pour l'Auto-développement et la Vulgarisation Agricole. (Direction of the Mobilization for the self-development and agriculture extension)
DPAE	Direction de l'Agriculture et de l'Elevage (Directorate of Agriculture and Livestock)
FACAGRO	Faculté d'Agronomie
FAO	Food and Agriculture Organization
FMD	Foot and Mouth Disease
HPAI	Highly Pathogenic Avian Influenza
HPB	Huilerie de Palme du Burundi (Burundi palm oil factory)
IRAZ	Institut des Recherches Agronomiques et Zootechniques (Agronomic and Livestock Research institute)
N.D.	Non disponible (not available)
ND	Newcastle Disease
OHP	Office de l'huile de Palme
PARSE	Projet d'Appui à la Reconstruction du Secteur de l'Elevage
PPA	Peste Porcine Africaine
RAFINA	Usine de raffinage de l'huile. (Oil plant unit)
RDC	République Démocratique du Congo (Democratic Republic of Congo)
SRDI	Société Régionale de Développement de l'Imbo (Imbo regional society for development)

## Chapter 1

## The country in brief

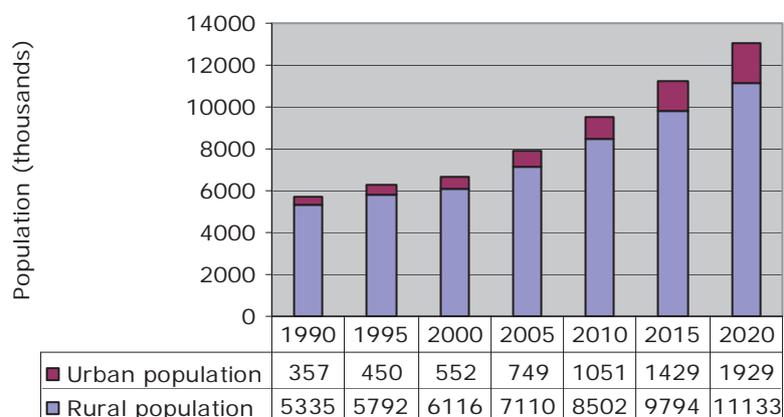
Country:	Burundi	
Location:	Central Africa, east of Democratic Republic of the Congo	
Population, total	8,691,005	Source: World Bank, 2008
Population, growth rate:	3.443% (2008 est.)	Source: World Bank, 2008
Economy group:	Low income economy	Source: World Bank, 2008

FIGURE 1: Gross national income (GNI) per capita  
(Atlas method, current US\$)



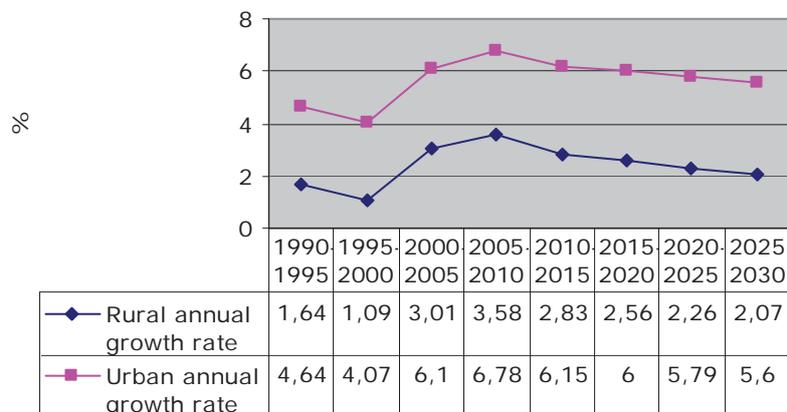
Source: The World Bank Group World Development Indicators, September 2008

FIGURE 2: Demographic profile



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, <http://esa.un.org/unup>, September 2008

FIGURE 3: Annual population growth rates



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, <http://esa.un.org/unup>, September 2008

## Chapter 2

# Profile of the poultry sector

## 2.1 NATIONAL POULTRY FLOCK

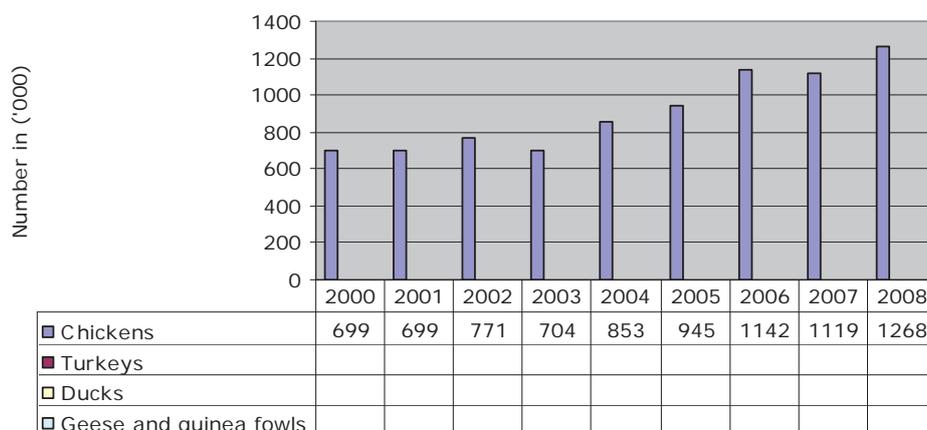
In the past, poultry activities were done by most of households in Burundi. The socio-political crisis which started in 1993 caused serious negative impacts on poultry activities. In addition, the outbreaks of avian influenza in Africa reduced a lot the activities and in the year 2006, they were completely abandoned. However, the two constraints did not affect all types of breeding at the same level. Thus, if the effects of the socio-political crisis affected all types of husbandry, the measures taken to prevent the avian influenza like the required conditions for poultry products importation (hens, chicks or fertilized eggs) had severe consequences only on commercial and industrial farms. In order to demonstrate the negative impact of the war in Burundi, the numbers of chicken were estimated at 2 200 000 in 1992 and only 698 589 in 2000. Also, among all livestock breeds, poultry was the most affected by the crisis as revealed by the evaluation done by the "Direction Générale de l'Elevage" (Livestock Directorate) in 1997. In that year it was shown that there was a loss of 32% of cattle, 40 % of goats, 51% of sheep, 1% of pigs and 80% of chickens. However, between 1993 and 1995, the loss of pigs was 67%, but because pigs are prolific, the numbers rose again such that by 1997 the loss was found to be 1% only. Chicken are easily transported and were all the time targeted not only by the fighters but also by thieves. Whereas the Government and the donors supported the restocking of other livestock species, no one project or donor was seriously interested in the poultry sector. Table 1 shows the numerical importance of each species of livestock and its evolution over the last 15 years.

TABLE 1:  
Évolution of the numbers of animals (2007)

Species	1992	1997	2000	2004	2005	2006	2007
Bovine	459,272	311,017	358,492	374,475	395,741	433,800	479,106
Goat	975,211	585,043	868,039	1,108,952	1,194,780	1,438,713	1,606,717
Sheep	392,030	190,342	224,663	235,611	242,933	266,510	292,916
Pigs	90,437	89,500	194,218	136,360	169,572	178,737	189,505
Poultry	2,200,000	440,000	698,589	852,954	945,318	1,142,102	1,119,020

Beside the loss of poultry due to the war in Burundi, the poultry activities in commercial and semi commercial systems suffered a lot from the trade embargo declared in 1996 by the countries in the sub-region. The situation was aggravated by the Bujumbura international airport closing in 1999. The importation of the agricultural inputs was very difficult and the importation of chicks from Europe was suspended. The alternative route of chicks and eggs passing through neighbouring countries turned out to be very expensive with a lot of losses.

Currently, the poultry keeping activities are slowly picking up but a lot of effort and support are needed in order to return to the situation before the crisis and above all to meet the animal protein needs for a population whose annual growth rate is about 3 %. Figure 4 shows the development of poultry population since 2000.

**FIGURE 4: National poultry numbers**

Source: FAOSTAT, September 2008

## 2.2 GEOGRAPHICAL DISTRIBUTION OF POULTRY FLOCKS

Poultry are kept in all provinces of the country. The following table shows the distribution of poultry in the 17 provinces of the country.

TABLE 2:  
Poultry distribution by province

Location	Chicken										Human population					
	Breeding stock		Broiler		Layers		Local		Dual purpose			Ducks	Guinea fowls	Turkey	Pigeons	
	Exotic (Commercial)	Total	Total	Total	Total											
Bubanza	0	0	0	0	0	45 729	45729	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	363381
Bujumbura	0	0	0	0	0	48 478	48478	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	525287
Bururi	0	0	0	4500	0	122 602	127102	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	519398
Cankuzo	0	0	0	0	0	91 954	91954	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	210417
Cibitoke	0	0	0	0	0	79 729	79729	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	495973
Gitega	2800	1200	0	3000	0	79 459	86459	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	738040
Karuzi	0	0	0	0	0	45 918	45918	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	439125
Kayanza	0	0	0	0	0	25 828	25828	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	553544
Kirundo	0	0	0	0	0	118 678	118678	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	622250
Makamba	0	0	0	0	0	54 585	54585	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	483446
Muramvya	0	0	0	0	0	29 180	29180	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	293764
Muyinga	0	0	0	0	0	130 791	130791	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	610764
Mwaro	0	0	0	0	0	43 805	43805	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	266084
Ngozi	0	0	0	0	0	49 102	49102	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	743939
Rutana	0	0	0	0	0	160 408	160408	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	303383
Ruyigi	0	0	0	0	0	89 929	89929	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	380479
Bujumbura Marie	0	0	0	40000	0	0	40000	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	402920
<b>TOTAL FOR THE COUNTRY</b>	<b>2800</b>	<b>1200</b>	<b>0</b>	<b>47500</b>	<b>0</b>	<b>1216175</b>	<b>1267675</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7952194</b>

Source: Direction of Mobilization for Self - development and Agriculture Extension: Report of first half of 2008.

As it is shown on the geographical distribution table for the poultry flocks, the local chicken breed is the most abundant. The other species such as ducks, turkeys, guinea-fowl and pigeon are so few that the extension and husbandry services took them off the animal inventory and hence data for those poultry species is lacking. However, 6000 ducks were distributed in 2006 by FAO through OSRO/RAF/502/SXE project. The beneficiaries were vulnerable people in Gitega, Ngozi and Bujumbura provinces.

According to the table, three provinces with highest numbers of chicken, more than 100 000 each, are Bururi, Kirundo and Muyinga, where the security conditions were the best. The provinces of Bubanza and Bujumbura, where the security improved only recently, recorded less than 50 000 chickens each. This is also the case of Kayanza and Muramvya provinces neighbouring with the Kibira National Park, which was a rebel area.

The low numbers of poultry in the provinces with high population density may be explained by the deterioration in social relations between neighbouring households due to the traditional mode of chicken rearing which is free range. In fact, in some regions like Kirimiro, the chicken wandering beyond the owner's property was not tolerated by neighbours any more. An amount of 20 000 Burundi Francs were paid as fine for a chicken found in somebody's coffee plantation. This amount is three times the value of a chicken. Some other people would give food laced with poison such as pesticides or other toxic substances, to a chicken entering in their property. Chicken owners have to tether them or to keep them in an enclosure and feed them. This is a serious problem because the households do not have enough food for the family members.

The exotic chicken breeds are found around urban areas like province headquarters and trade centres. Exotic chickens were raised by some small scale farmers with imported breeds until 1995. Although the enterprises were expanding, they suffered from lack of inputs like vaccines, food and chicks because of the embargo and other crisis impacts. The farmers did stop their activities, but rather, they were faced to some constraints to restart such as lack of capital and inputs.

## 2.3 PRODUCTION

The annual poultry meat production, mostly chicken meat, is estimated at 10% of the total meat produced in Burundi. It is ranking at the 4th position after beef (54%), goat (19%) and pork (11%). In 1990, the poultry meat production, like the pork production, was 15 150 tons (12%). They were classified at the third position after beef (38%) and goat (29%)<sup>2</sup>.

The chicken is an easy source of income generation, especially for poor households who do not own any other livestock, and it contributes a lot in some risk management (medical expenses, school fees etc.). Comparing with other species raised in Burundi, chicken and sheep contribute each at 5% in risk management and hold the third position after beef (30%) and goats (60%).

Taking into account the relative importance of its products and others services offered, two things are reported<sup>3</sup>. In progressive or commercial farms, chickens are raised for egg production at 55%, for meat production at 40%, for risk management at 4% and for poultry manure production at 1%.

In the traditional farms, the situation is different. The chickens are raised to meet unexpected expenses at 60%, egg's production at 30%, for meat and poultry manure production at 5% each. Therefore, it is important to mention that the chicken eggs produced are sold in order to get some money and satisfy some basic needs (example: salt, cooking oil, exercise books for the school children, etc.). Chicken are also sold for the same purposes. The eggs and chicken meat consumption by the farmers are exceptional. However, farmers may slaughter a rooster or a hen for some special events like a feast or a visit of a very special guest.

Even if the indigenous chicken registers very low performance, the population continues to rise in spite of the fact that the poultry sector does not receive that much attention from technical services.

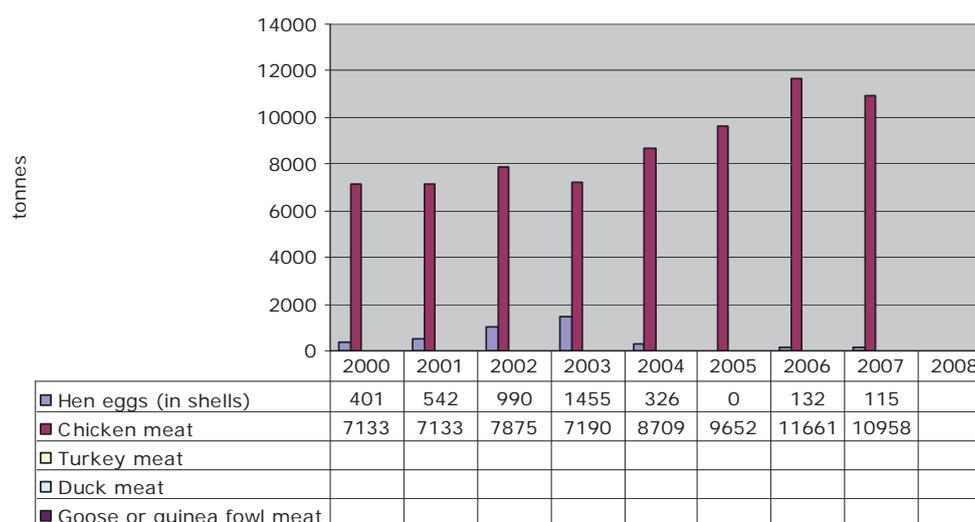
<sup>2</sup> Source: Projet BDI.86.007 – 1990. (Elevage: Consultation sur le secteur rural Volume II – Thème N°1 Février 1991.

<sup>3</sup> Rapport national sur les ressources génétiques.

However, the Government and some NGOs have contributed, in some rural areas, in the improvement of indigenous chicken production by introducing exotic breeds. Unfortunately, the result is not actually visible because of the socio-political crisis in Burundi which started in 1993. In addition, the commercial farms established in urban and peri-urban areas, especially in Bujumbura city, were drastically hit by the socio-political crisis and recently by the measures taken in order to prevent avian influenza. Their breeding system and performances were in conformity with technical norms used for industrial production in developed countries. As a result, very few farmers restarted poultry production activities. In as much as most of them would like to start, they are still hesitant because of unreliable supply of adequate and quality inputs such as chicks, feeds and medicines. The other factor is that for the moment, the economic profitability of poultry business is very low.

The egg production is almost 100% by chickens. The population of other poultry species is very small. After two years of cessation of activities (from May 2006 to April 2008), some commercial egg production units are slowly restarting business near the capital city. In Bujumbura town, there are now about 40 000 layers in six farms. The layers are exotic breeds which were imported from Europe, Uganda and Kenya as day old chicks. The most represented breeds are the Red Grey, the Warren and the Harco for eggs production and the Hubbard for broiler production. The largest farm is AVICOM with 20 000 layers. These farms are rearing the layers using modern husbandry methods but they are faced with the problem of feeds. The feed supply does not meet the demand. Each farm tries to solve the problem by using the ingredient available on the local market to prepare the needed feeds. However, it is very difficult to get sufficient feed ingredients to produce enough quantity and quality required to feed poultry with high performance.

FIGURE 5: National production of the poultry sector



Source: FAOSTAT, September 2008

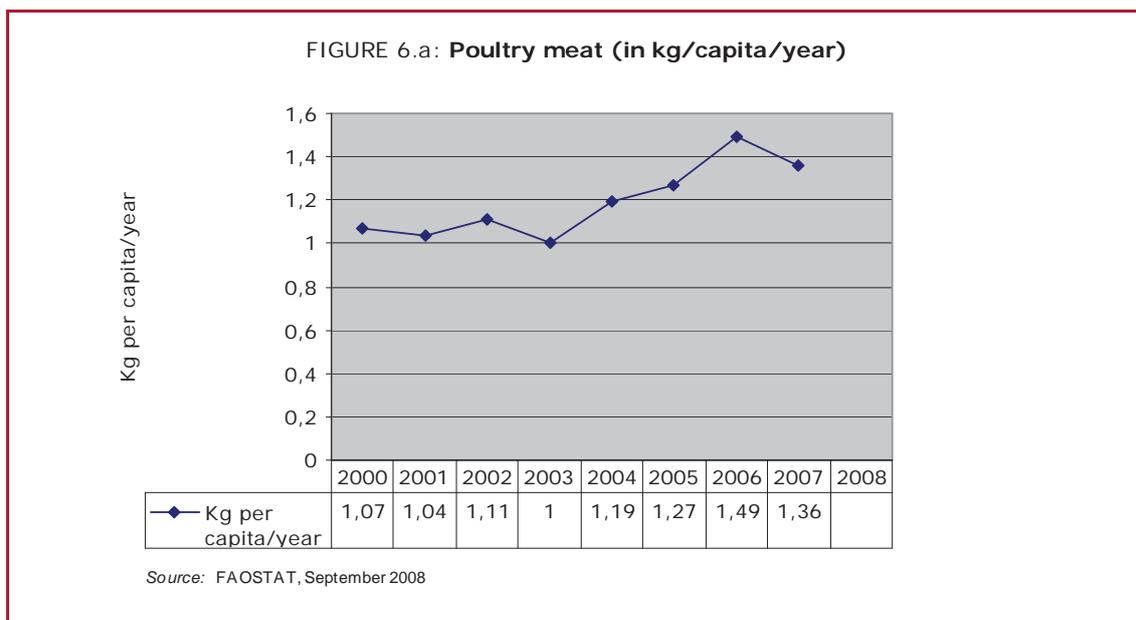
## 2.4 CONSUMPTION

Eggs and chicken meat are very appreciated by Burundians even though, until recently, women were forbidden to eat chicken eggs and meat. Actually, the saying « Umugore ntarya rusake aba agomba kubika nka yo » literally meaning "a woman cannot eat a rooster unless she wants to crow" is less used even if it is still in use in traditional songs. The saying seems to have been invented in order to perpetuate the taboo which prohibited women from talking in front of men. With women education, the taboo has been slowly abandoned. Some rare traditionalist women are still obeying the taboo. Some of them eat neither eggs nor chicken meat while some others eat only one of these chicken products.

In rural Burundi, poultry products' consumption is rare. In rural areas, the objective of breeding chicken is to generate income. However, in Bugendana commune in Kirimiro region for example, the chicken breeding is primarily intended for the poultry manure production and then as an income generating activity. The poverty prevailing in most rural households contributes in maintaining the habit initiated during the colonial period when the poultry products were reserved to white people and after independence it is reserved to salaried

people. This means that the poultry products are mainly reserved to rich people and their consumption in poor households is rare. Sometimes a farmer would sell a chicken to get money and use part of to buy beef meat, pork meat or goat meat which is cheaper than chicken meat. This looks like paradoxical because elsewhere in the developed world, poultry products are for people with low income while in Burundi they are reserved for the rich people.

More detailed information on chicken meat consumption is provided in figure 6a and on chicken egg consumption in figure 6b.

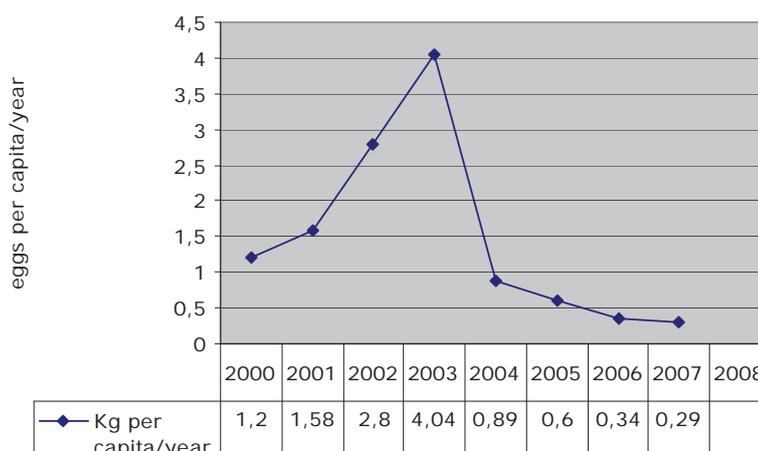


The daily average poultry meat consumption in terms of calories ranged from 3 to 5 calories during the last eight years, meaning an average of 1 to 1.5 kg of poultry meat per year per capita.

The situation is not any better in egg consumption where the average calories per capita per day are insignificant. The average eggs consumption varied from 1.2 per year per capita in 2000 to 4 eggs in 2003 and dropped to 0.3 eggs in 2007 because of the negative impact of the measures taken to prevent avian influenza (Figure 6b). The measures included a ban on importation of poultry and poultry products as well as consumption of poultry and products.

The egg consumption is mainly in urban areas because eggs are used in breakfast menus and pastries eaten in restaurants. The egg consumption is however increasing in Bujumbura peri-urban poor households because people with low income eat cassava flour meals with eggs in case of fish shortage. However, this changed in 2006 when egg production was low.

FIGURE 6.b: Eggs (in eggs/capita/year)



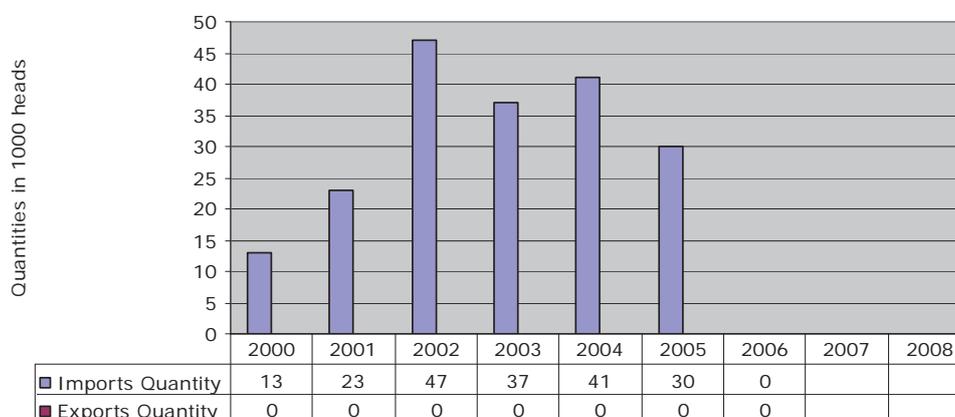
Source: FAOSTAT, September 2008

## 2.5 TRADE

The poultry sector is dominated by importation because the national poultry production is too small to satisfy the local demand. The layer day old chicks are the main ones which are imported this is because of the high demand for eggs particularly in Bujumbura capital city and also elsewhere in the country. The shortage of eggs is a result of the avian influenza threat in 2006. On one hand, the rural households suspended the restocking of poultry flocks which was on the increase in 2006 and some of them stopped all poultry activities due to the avian flu scare. On the other hand, the measures taken by the Government in 2006, to prevent the introduction of avian influenza in the country included banning of importation of eggs and chicks by the farmers located around Bujumbura city and by Mutoyi farm in Gitega province. In addition, Rwanda, a neighbouring country, banned the transit of poultry through their country, all poultry imported from Europe by Burundi farmers. Another misfortune for the poultry industry was the trade embargo imposed earlier in 1996 on the country which entailed the banning of international airlines from landing at Bujumbura airport. Only AVICOM farm managed to import chicks from Uganda using Burundi airlines.

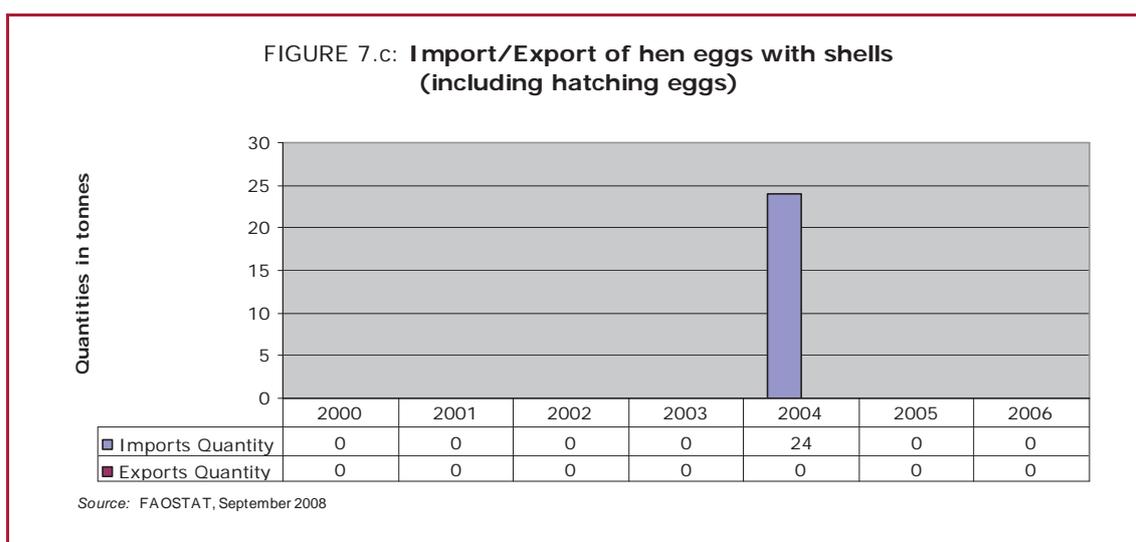
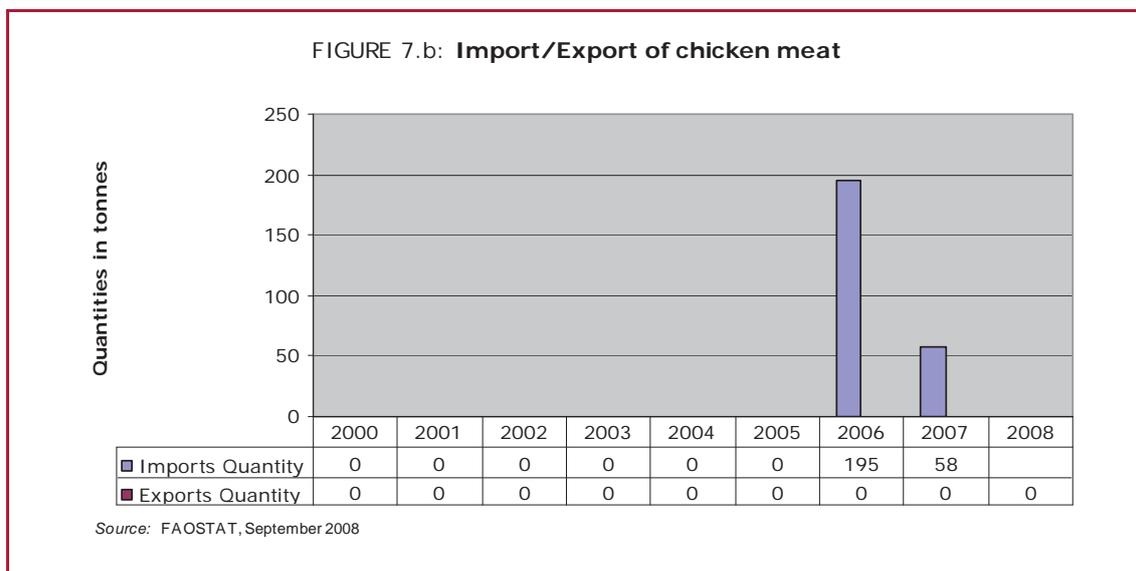
Belgium and France are the traditional suppliers of day old chicks and hatching eggs to Burundi but actually the importations from Uganda and Kenya are increasing and it is expected that, there will be an increase in importation from the two countries now that Burundi has joined the East African Community.

FIGURE 7.a: Import/Export of live chickens (up to 185 g. only)



Source: FAOSTAT, August 2008

In Burundi, poultry meat importation is almost insignificant. Since 2000, it never exceeded 100 Kg per year except in 2006 and 2007 when 195 tons and 58 tons were imported to supply ONUB troops on mission. They were imported from Cyprus, Paraguay, Brazil and India.



Note: In 1998, a private farmer in Gitega city used a Government incubator on trial basis to hatch imported fertilized eggs and the trial gave very poor results. As a result, importation of fertilized eggs was stopped for seven years. In 2007 importation of fertile eggs resumed and 1348 Kg of fertile eggs were imported. It has been noted however, that the hatchability is lower for the imported eggs than the eggs produced locally. During the first half of the year 2008, only 47 Kg of hatching eggs had been imported.

Figure 7.d: Import/Export of poultry feed and feed ingredients (maize, soybeans)

*Detailed data not available*

In Burundi, it is difficult for farmers to feed their livestock properly because there are no commercial feed millers in the country. As a result, each farmer prepares own poultry feed from ingredients locally produced or bought from neighboring countries. The most frequently imported ingredients are maize, cotton seed cakes, fish meal, minerals and vitamins.

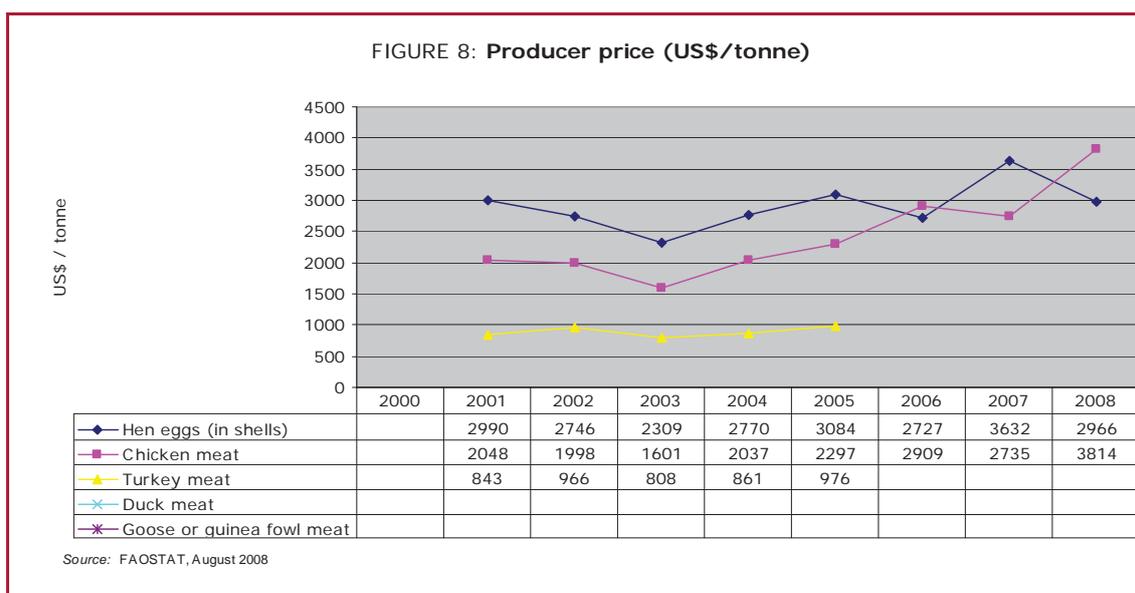
It is difficult to estimate the imported quantity of ingredients intended for poultry feeding because the information available at the customs offices does not distinguish livestock species for which the feed is imported. For example, from the cotton seed cake imported, it does not mention how much was for ruminants and what quantity was for poultry. It is more complicated for maize because it is for both animal feeding and human consumption. Thus,

in 2007, Custom services recorded 11474 tons of imported maize which most likely was for human consumption mainly.

In 2007, only one ton of cotton seed cake was imported while 276 tons were imported in 2006, and 677.5 tons in 2005. This difference is due to two factors that occurred at the same time, but it is difficult to know the relative importance of each of them. Thus, the avian influenza scare happened at the same time as the Government decision to relocate livestock farms from Bujumbura city to Bujumbura rural province which forced many dairy farmers to abandon livestock keeping activities. Therefore, it is very difficult to know what quantity of cotton seed cake was used for what type of animals since cotton seed cake was used by both poultry farmers and dairy farmers. The same difficulty concerns the fish. Most of the fish is imported from Tanzania and is used for both as human consumption and as an ingredient in the animal feeds.

## 2.6 PRICES

The estimated production cost of poultry is high because the inputs, especially feeds are expensive and supply is limited. In fact, the local production of cereals is very low and the seed cake production (cotton, palm, sunflower meals) is also low. Given that poultry feeds account for at least two thirds (67%) of the cost of poultry production, it is understandable why the prices of poultry products are high and continue to rise. According to statistics from FAO and some suppliers of poultry products in Burundi like Mutoyi Cooperative and AVICOM farm, the egg price per ton fluctuates around 3000 US\$ and hence has not changed much from 2001 to 2008. On the contrary, the poultry meat price that was 1601 US\$ per ton in 2003 has reached 3813 US\$ per ton in 2008, and hence has more than doubled within five years.



The data in the consumer price table below are calculated by increasing 20% of the producer<sup>4</sup> price. From the data, the following comments may be made:

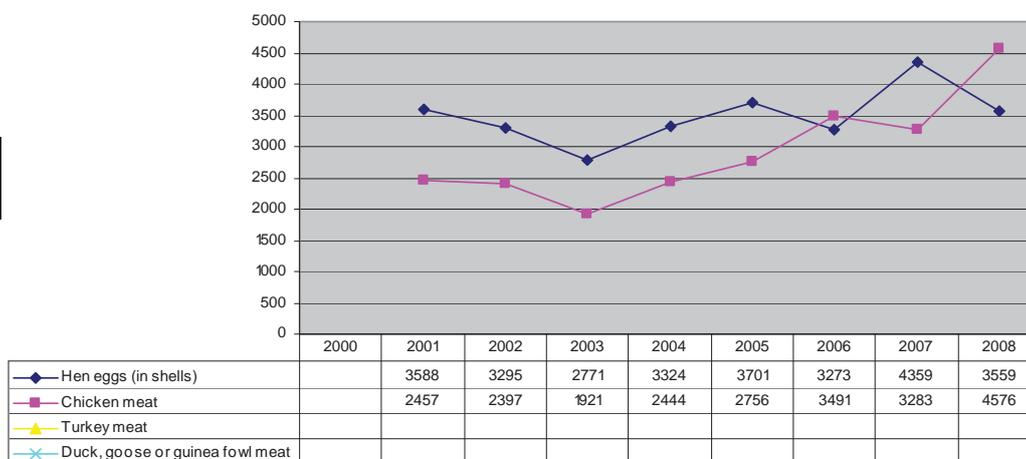
- Since 2003, the poultry meat prices have been continuously increasing. As an example a kilogram of meat which cost 1.92 US\$ in 2003 and is now 4.58 US\$. According to the trend, the price will increase again because of the lack of beef supplies. The trend in consumer price is shown in the table below.
- A similar comment may be made for the egg prices. In 2003 it was possible to buy 9 eggs with 1 US\$, but now the same 1 USD will buy only 7 eggs. Meanwhile, the average income per year per capita is estimated at 144 US\$, meaning less than 1 US\$ per day<sup>5</sup>. However, according to economists, that income is worth 393 US\$ in terms of purchasing power.

<sup>4</sup> Informal inquiry at Mutoyi farm and the price are recorded from CCIB.

<sup>5</sup> Source: ISTEERU: Chiffres clé de l'économie burundaise pour l'année 2008.

Year	2001	2002	2003	2004	2005	2006	2007	2008
<b>Analyzed parameter</b>								
Eggs bought with 1 US\$	7	7,6	9	7,5	6,8	7,6	5,7	7
Price of one kg of chicken meat	2,46	2,40	1,92	2,44	2,76	3,49	3,28	4,58

FIGURE 9: Consumer price (US\$/tonne)



Source: FAOSTAT, September 2008

## Chapter 3

## Poultry production systems

TABLE 3:  
FAO classification of poultry production systems

Sectors (FAO/definition)	Poultry production systems			
	Industrial and integrated	Commercial		Village or backyard
		Bio-security		
		High	Low	
	Sector 1	Sector 2	Sector 3	Sector 4
Biosecurity	High	Mod-High	Low	Low
Market outputs	Export and urban	Urban/rural	Live urban/rural	Rural/urban
Dependence on market for inputs	High	High	High	Low
Dependence on goods roads	High	High	High	Low
Location	Near capital and major cities	Near capital and major cities	Smaller towns and rural areas	Everywhere. Dominates in remote areas
Birds kept	Indoors	Indoors	Indoors/Part-time outdoors	Out most of the day
Shed	Closed	Closed	Closed/Open	Open
Contact with other chickens	None	None	Yes	Yes
Contact with ducks	None	None	Yes	Yes
Contact with other domestic birds	None	None	Yes	Yes
Contact with wildlife	None	None	Yes	Yes
Veterinary service	Own Veterinarian	Pays for veterinary service	Pays for veterinary service	Irregular, depends on govt vet service
Source of medicine and vaccine	Market	Market	Market	Government and market
Source of technical information	Company associates	and Sellers of inputs	Sellers of inputs	Government extension service
Source of finance	Banks and own	Banks and own	Banks and private <sup>6</sup>	Private and banks
Breed of poultry	Commercial	Commercial	Commercial	Native
Food security of owner	High	Ok	Ok	From ok to bad

*Sector 1:* Industrial integrated system with high level of biosecurity and birds/products marketed commercially (e.g. farms that are part of an integrated broiler production enterprise with clearly defined and implemented standard operating procedures for biosecurity).

*Sector 2:* Commercial poultry production system with moderate to high biosecurity and birds/products usually marketed commercially (e.g. farms with birds kept indoors continuously; strictly preventing contact with other poultry or wildlife).

*Sector 3:* Commercial poultry production system with low to minimal biosecurity and birds/products entering live bird markets (e.g. a caged layer farm with birds in open sheds; a farm with poultry spending time outside the shed; a farm producing chickens and waterfowl).

*Sector 4:* Village or backyard production with minimal biosecurity and birds/products consumed locally.

<sup>6</sup> Money lenders, relatives, friends, etc.

### 3.1 BACKGROUND INFORMATION

In Burundi, three poultry production systems are found: traditional production system (sector 4; according to the FAO definitions), progressive commercial farmers at the household level (sector 3) and intensive production system (semi industrial and industrial; sector 2)

Of all these poultry production systems, the traditional system is the most prevailing. It is practiced by farmers who, in addition to other agricultural activities; rear 2 or 3 hens in the backyard. However, the number of homes with poultry and the number of poultry by farmer has been reduced because of the socio-political crisis which prevailed in Burundi for 12 years. In fact, 10 chickens per household were frequently found everywhere in the country before the crisis. The national chicken flock is almost exclusively made of indigenous chicken. The breeding of other species is rare. Ducks for instance found in very few households where they are bred and kept in the same premises as the indigenous chickens.

### 3.2 SECTOR 1: INDUSTRIAL AND INTEGRATED PRODUCTION

There is no industrial and integrated poultry production system or sector 1 in Burundi. There are however, commercial farms in Bujumbura which are located within the urban and peri-urban areas and are owned by farmers intending to re-stock their poultry flocks after more than 10 years of decline. The only integrated commercial unit is the Mutoyi cooperative which is supported by the Italian catholic missionaries.

The commercial intensive poultry production was well developed before the embargo which was imposed by countries in the sub region against Burundi in 1996. The intensive poultry enterprises were around Bujumbura city.

Before the embargo, intensive production was as follows:

- NASA society produced hatching eggs from Hubbard breed
- AVICOM had incubators and produced day old chicks
- Industrialists ( AVICOM, SOBEL, Budoromyi) had poultry flock populations of between 3000 and 6000 layers and broilers
- There were feed ingredients, materials and veterinary product suppliers (ALCOVIT, BL.E, ZAFARDEN, OPHAVET)
- There were selling points for the poultry products

Those commercial poultry units used the same standard operating procedures like those in developed countries. However, there were some constraints specific to Burundi<sup>7</sup>. Thus the quality of commercial feeds was low, while flock management, including hygiene, was poor. In addition, the quality of feeds produced by the farmers themselves varied.

The current situation regarding feed quality and production as well as supplies of medicines and vaccines is poor. In fact the only feed milling company in Burundi (ALCOVIT) stopped feeds production activities and there is no other company which produces poultry feeds. Similarly, OPHAVET, the only medicine and veterinary products supplier is not functioning any more.

Because of the low performance of the poultry industry in the country, private veterinary pharmacies have either limited or suspended the importation of veterinary products.

The commercialized poultry production is not well controlled such that production is erratic and seasonal, as a result production may change from 75 % to 100%. The absence of a public company specialized in poultry production seems to have contributed to lack of extension materials for farmers on modern small and medium scale poultry production.

The socio-political crisis caused serious negative impact on poultry activities. Some farms suspended or stopped their activities, for example; AVIMEX, AGRIVA, NTAWE farm, HICUBURUNDI farm and NASA Society. All of them operated around Bujumbura City. SOBEL's main activities were cattle fattening, pig farming and poultry, but poultry production stopped altogether and they are now remaining with only ten ostriches.

<sup>7</sup> R.Branckaert, A.de G. Habonimana, A. Nivyobizi.

In the countryside, Mutoyi farm in Gitega province suffered a lot from the impact of the socio-political crisis and more recently from the avian influenza scare. In 2006, the farm lost a lot of chicks and eggs because of low demand. Farmers stopped to order chicks and consumers refused to buy eggs because they were afraid of avian influenza infection. All of these factors have contributed to the decline of the poultry industry in the country.

### **3.3 SECTORS 2 AND 3: OTHER COMMERCIAL PRODUCTION SYSTEMS**

#### **3.3.1 Breeding stocks and hatching eggs**

The only breeding farm in the country is the one owned by Mutoyi cooperative, however production does not meet the demand and produces less than one tenth of national needs. In order to address the shortage, the Government through the Livestock Department imported hatching eggs and collaborated with Mutoyi cooperative to hatch and produce commercial parent stock. About 1000 commercial parent stock are being raised at the Livestock Department poultry center located in Gitega city. The livestock Department's incubator is currently out of order. Earlier on in 1998, the livestock Department used its own incubator to hatch eggs which were imported from Europe (France and Belgium) and hatchability was only 20%. The low hatchability was attributed to the high altitude effect (North, M.O., Bell, D.D. 1990), transport and poor handling. Mutoyi cooperative reported that the hatchability of imported eggs is lower than the hatchability of eggs produced locally. The other poultry farmers with egg incubators are AVICOM and L&E KISSCANADA. The first hatchability results from L&E KISSCANADA are promising although the company faced some problems such as the high prices for poultry feeds and lack of vaccines and appropriate medicines.

#### **3.3.2 Broiler meat**

Currently very few poultry farmers raise broiler chickens. All of the farmers around Bujumbura city keep layer chickens only. The lack of broiler feeds is the major reason for farmers not raising broiler chickens. Even AVICOM which is the major broiler supplier has suspended broiler production. However, Mutoyi cooperative farm hatches about 3000 day old chicks weekly and of these, 2000 are broiler chicks. Before the sociopolitical crisis, Mutoyi cooperative used to produce 12 000 day old chicks weekly of which 3000 were broilers.

#### **3.3.3 Chicken table eggs**

Besides the farms in the capital Bujumbura, hen table eggs are mostly produced by smallholder commercial farmers (Sector 3: see FAO classification). Before the socio-political crisis, sector 3 poultry farming was very active and common in peri-urban areas especially around provincial headquarters and along the main roads. These types of poultry farms belonged to agriculturalist (supported by development projects) and people with income such as government workers, NGO employees, traders and religious communities.

The farms are small sized with 20 to 100 chickens per farm. The poultry shelters are made of local materials and are not durable. The farmers use wooden feeders and kitchen utensils as drinkers. During the political crisis, the layer poultry farmers stopped raising chickens because of frequent house break ins and theft, general insecurity and lack of feeds. Before the crisis, the layer parent stocks were raised in government poultry centers, poultry projects or NGOs. There is need for government support in order for the poultry industry to recover fully.

#### **3.3.4 Other species**

Keeping of poultry species other than chickens is not popular in the country.

At one time, FAO tried to promote duck production and 6000 ducks were given to farmers. The project could not achieve its objectives for a number of reasons including the fact that some of the farmers consumed them even before reaching the reproductive age. In some cases, duckling mortality was high, while in 20 recorded cases, ducks died when they had reached adult and laying age.

## Ostriches

Four years ago, a private farm belonging to SOBEL started raising ostriches with a flock of about one hundred ostriches but to date that farm has only about forty of them. Some of them died very young and about twenty died as adults of laying age. The farm is located at Mutimbuzi which is about 12 Km from Bujumbura.

### 3.4 VILLAGE OR BACKYARD PRODUCTION

#### 3.4.1 Chickens

The indigenous chickens which are kept in rural areas make about 90% of all poultry species in the country. The husbandry is traditional and free range except during the crop planting season when they are tethered or confined as backyard poultry. During confinement, chickens are fed maize or sorghum grains and household wastes such as maize bran and local brew wastes. There is no separate housing provided for them.

The indigenous chicken is characterized by low productivity. The farmers get relatively low income from them. However, it constitutes a kind of savings which they mobilize in case of urgent needs. It is also a source of food (eggs and meat) for some richer rural families. Flock size per household is usually 2 to 3 adult chickens which is very small especially when compared to the flock sizes before the political crisis when the average flock size was about 10 adult chickens per household. The free range system is a low input low output system whereby feeds and veterinary services are not provided. There is no time investment by the farmers as compared to other livestock, especially cattle. It is the women and children who take care of the chickens. They provide their chickens with water, clean houses if it does exist (otherwise, chickens are sheltered in the main house with people, they gather in a corner of a room).

The indigenous chickens raised in the rural areas are generating very low income because of infectious diseases due to bad sanitary conditions. The common diseases are Newcastle disease, Coccidiosis, Fowl pox and Pullorum). The other reasons for the low performance are poor nutrition, low genetic potential and poor housing management. As a result, only 50 eggs are produced per hen per year in 2 or 3 clutches, hatchability is less than 60% and there is high chick mortality rate which is about 40%. In addition, the growth rate is very low. Table 4 below shows different characteristics of the indigenous chicken.

TABLE 4:  
Technical and Production parameters of the indigenous chicken

TECHNICAL AND PRODUCTION PARAMETERS	
<b>Reproduction</b>	
Age to first egg (in months)	6
Number of eggs per hen per year	50
Number of eggs left for incubation per hen per year	10
Number of eggs sold	40
Hatchability (%)	60%
Number of chicks hatched /year/hen	6
Males and females ratio at hatching (%)	50
<b>Mortality and culling</b>	
Chick mortality	40%
Adult mortality	20%
Carcass yield	80%
<b>Production parameters</b>	
Weight of eggs (g/unit)	40
Age of chicken at market (days)	200
Age of females at culling (days)	730
Age at culling of males used in reproduction (days)	1095
Weight of chicken at market (kg): chicken	1,2
Weight of females at culling (kg): hens	1,5

TABLE 4:  
**Technical and Production parameters of the indigenous chicken**

TECHNICAL AND PRODUCTION PARAMETERS	
Weight of males at culling (kg): cock used in reproduction	2
<b>Total production generated</b>	
Chicken produced by a hen / year (number)	3,60
Chicken meat produced/ by a hen / year (number)	4,32
Culled hen produced by a hen/year (number)	0,40
Meat from culled hen produced by a hen/year (kg)	0,60
Culled cock produced by a hen/year (number)	0,05
Meat from culled cock produced by a hen/year (kg)	0,11
Egg production (number of eggs not incubated by a hen/year)	40
Egg production (kg/hen/year) (sold or for home consumption)	1,60

Source: Document de projet PARSE

### 3.4.2 Ducks

Like indigenous chicken, ducks are raised in a traditional manner and have to find their own food by scavenging around the homestead. In some regions which have a lot of biting flies, such as Bugesera and Moso regions, ducks are associated with cattle and they feed on the flies, thus limiting the effects of biting flies on the production of cattle.

Other species like turkey, guinea – fowl and pigeons may be found but they are very rare and limited in number.

### 3.4.3 Case study one

Date of case study:	May 2008
Area location (incl. GPS coordinates):	The Gitega commune is one of the 11 communes that make Gitega province. In the north, there are Giheta and Shombo (in Karusi province) communes, in the South – East, there are Makebuko, Nyarusange and Itaba communes and in West there is Nyabihanga in Mwaro province. It is located between 29°54' and 32°12' longitude East and between 3°28' and 3°52' latitude South.
Human population figures:	136 562
Poultry population figures:	6750

#### Description of the location

Gitega commune is located in the central part of Burundi with an area of 315 km<sup>2</sup>. It is the largest commune of Gitega province. It is divided into four administrative zones, 29 hills and 9 centres in its urban part. Gitega commune is fully located in Kirimiro natural region which is characterized by an altitude of between 1600 and 2000 m and an average annual rainfall of 1200mm, and average temperature of 19°C. It has a tropical climate moderated by the altitude and a river network which are tributaries of the Nile Basin. Ruvubu is the main river with Ruvyironza as the main affluent (the southern source of Nile River). Gitega commune is hilly with the eastern sector, which includes Mubuga and Gitega rural zone, being the most steep. The rain water is directly carried to the lower part of the hill. Flooding is a problem in rainy seasons in those lower parts of the hills.

The soil is mainly composed of clay associated with sand in some hillsides, gravel on the top and clay in the lower part. Broadly speaking, Gitega soil is acid and needs organic and chalky treatment to increase its productivity. Gitega commune has a population estimated at 136 562 inhabitants with a density of 433 inhabitants / Km<sup>2</sup>. The population is young with 64% aged less than 25 years.

Located in Kirimiro natural region, Gitega commune has a high agricultural production potential due to its soils and favorable climate. The main crops grown are beans, maize, sweet potatoes, bananas, potatoes and cassava but the productivity is very low because of different constraints. Among these, the following are the most important: (i) soil overuse and continuous degradation; (ii) insufficient selected and improved seeds; (iii) very small farming area; (iv) weakness of the agricultural extension structures at the lower level and (v) climate and season changes which has been experienced in the last few years.

### **Description of the poultry sector on this location**

In Gitega commune, like all over the country, the poultry sector is underdeveloped. Poultry is dominated by the indigenous chicken, which has a small size and has low productivity. The indigenous chicken is on free range and scavenges in the backyard most of the time. In Gitega commune the chicken population was 4322 in 2005, 6750 in 2007 and is expected to be bigger in 2008. In fact, Gitega is recovering from the war which prevailed in the commune for years and economic activities, including breeding, are now starting to pick up. However, the statistics reveal that the chicken numbers do not meet demand of the commune. In fact, there is an average of one chicken for three households (which means one chicken for about 20 persons since the size of Burundian family is six or more persons).

In some rare households, especially in Gitega city in the peri-urban areas, exotic chicken breeds with better performance are found. In fact, Mutoyi Cooperative, in Bugendana commune neighbouring Gitega, produce hybrid chicks with high productivity and some of them are sold in Gitega city. Eighty percent of the chicks are layers while others are broilers. Although the layer hybrid chicks are expensive, Gitega inhabitants like them because of the high egg production provided the proper feeds are available. Crossbreeding between indigenous and exotic chicken is practised by some small scale farmers. The other indigenous poultry species like the duck, turkey, guinea – fowl and pigeon are few and rare in Gitega commune.

### **Poultry value chain analysis on this location**

Gitega commune has a conducive environment for raising chickens, but unfortunately is not taken advantage of. The public breeding services and a poultry centre are located in Gitega commune. The objective of the poultry centre is to produce day old chicks intended for the whole country. The centre has both an incubator and a hatchery room. Unfortunately the incubator which has a capacity of 10 000 eggs and hatchery room with 3300 eggs capacity have not been repaired and reinstalled and yet the layer parent chickens have already started laying hatching eggs. The incubator was first installed at the centre in 1997 and the hatchability was poor. The reasons for the poor performance are not well known and assumed to be partly due the fact that the incubator was meant for the lower altitude (800 m) and yet Gitega where it was installed is 1800m above sea level.

Gitega city is a ready market for poultry and products since it is the second largest city of Burundi and hence favours the raising of chickens in the peri-urban areas. The Superior institute for Agriculture which trains specialists in poultry breeding is also located in Gitega commune. In addition, the headquarters of a regional (Burundi, DRC and Rwanda) institute for Research in Agriculture and Breeding is located in Giheta commune which is about 8 Km from down town Gitega city. Therefore the potential for raising chickens in Gitega commune is very high, but there is need to solve some of the constraints, especially the incubators and hatchers. It is expected that once these challenges are tackled, more farmers will engage in poultry production and feed mills will spring up.

### 3.4.4 Case study two

Date of case study:	February 2008
Area location (incl. GPS coordinates):	Bugendana is one of the 11 communes of Gitega province. It is located between 29°48' and 32°2' longitude East and between 3°9' and 3°21' latitude South. It is crossed by meridian 30°, near the intersection of Ruvubu and Ruvyironza rivers. Those rivers constitute the limits of Mugerera and Mutoyi administrative zones.
Human population figures:	112 131
Poultry population figures:	17 453

#### Description of the location

Bugendana commune borders Mutaho and Gihogazi communes in the north, in the South is Giheta commune, in West borders Rutegama and Mbuye communes while in East is Shombo commune.

The commune's area is 283km<sup>2</sup> and is about 14% of the entire area of Gitega province. The topography of Bugendana commune resembles a big basin in which the centre is located in Bitare at 1789 m above sea level. The relief is made of rounded hills or hills with gentle slopes which change progressively and reach more than 1900m of altitude in the eastern part in Mugerera and Mutoyi zones. The highest point is at 2001 m of altitude and is located at Shunga chain, near Mugerera. The lowest point of the Commune is at 1406m of altitude in the intersection of Ruvubu and Ruvyironza rivers. Bugendana commune has a tropical climate moderated by the altitude. The temperatures change a lot during the year. The annual average is 20°C with an average minimum of 12.6°C and an average maximum of 25.3°C. The highest temperatures are registered in September and October and the lowest are registered in June and July. The rainfall is abundant with annual average of 1200mm. There are four seasons, namely; two rainy seasons (October to mid December and February to April) and two dry seasons from May to September and mid December to the end of January. The dominant vegetation is herbaceous savannah, dominated by *Eragrostis*. There are also some communal and State planted forests. The vegetation has been frequently destroyed by bush fires combined with the population pressure which lead to excessive erosion and loss of fertility. Bugendana commune has different types of soil. The most common being the red iron soils and which are eroded and are poor in humus. The soils are acidic. Organic and chalky treatments are needed to restore their productivity.

#### Description of the poultry sector in this commune

Bugendana has the highest number of commercial chickens in Gitega province because of the poultry centre which is located in Mutoyi zone and which supplies chicks, poultry feeds and technical information. Although there is a relatively large population of commercial layers and broilers (about 3590 chickens), the indigenous chicken still dominates with 13863 chickens.

#### Poultry value chain analysis on this location

Among the eleven commune of Gitega province, Bugendana is the most privileged in terms of modern poultry chain development. The Mutoyi poultry centre possesses sufficient space and equipment to weekly produce 12 000 chicks. The chickens are sold to contract farmers at three weeks old an age when there will be no need for farmers to provide heat for the grower chickens. Farmers then raise the broilers for seven weeks and hence they are 10 weeks old when they are sold back to Mutoyi centre where they are slaughtered and then sold in Bujumbura city. Contract farmers buy the feeds manufactured by Mutoyi centre, in cash or on credit. The feeds are of good quality such that they reach 2 kg live body weight at slaughter. Farmers, who get feeds on credit, pay back when their chickens are sold.

Similarly, layer chicks are sold to farmers when they are three weeks old. The commercial layer feeds for each growth phase are manufactured by the poultry centre. The Mutoyi poultry centre buys back the eggs from the farmers.

Thus, according to these opportunities Bugendana may become a pilot commune for modern rural poultry development. The only question is availability of sufficient quantity of poultry feeds. Any project aimed at poultry intensification in the commune would promote simultaneously farming of maize and oleaginous plants such as sunflower or peanut. The soil fertility is a major handicap for crop production for the whole Kirimiro region in which Gitega province belongs to. This is why poultry farmers interviewed in the commune pointed out that their main objective of raising chickens is poultry manure production as fertiliser for their farms. Egg and chicken meat production are secondary products in importance although they are also a source of income when sold. Such income will allow them to get more chicks and feeds and face other home expenses. The application of poultry manure from 200 broilers and 50 layers in a maize plantation raises maize production from 500kg to three tons; this was confirmed by Mr Mathias in-charge of Mutoyi poultry slaughter unit.

### 3.4.5 Case study three

Date of case study:	May 2008
Area location (incl. GPS coordinates):	Gashikanwa commune, one of the Ngozi communes in Buyenzi natural region. It is located between 29°48' and 29°57' longitude East and between 2°46' and 2°58' latitude South
Human population figures:	57 348
Poultry population figures:	1 488

#### Description of the location

The commune's area is 142;78 Km<sup>2</sup> it borders Nyamurenza commune in the north, in South is Ruhororo commune, in East is Kiremba and Tangara communes, in West there is Mwumba and Ngozi communes. The relief is made of hills with gentle slopes. The commune is characterized by an altitude of between 1500m and 1900m. It has a humid moderate tropical climate and an annual rainfall between 1200 and 1500mm. The average temperature varies between 17 and 20°C. The hydrology of Gashikanwa commune is built on three major marshes occupying 1000 hectares: Nyamuswaga in East, Nyakijima in south and Nkaka in West. The population of Gashikanwa commune is estimated at 57 348 inhabitants of whom 45.4 % are below 15 years of age. The Gashikanwa age figures are similar to the figures observed in others communes and the rest of the country. The population density is 401 inhabitants / Km<sup>2</sup>.

#### Description of the poultry sector on this location

In Gashikanwa Commune, the only poultry kept are the indigenous chicken raised in the traditional manner. This significantly differs from poultry situations in Gashikanwa and Bugendana communes. Because of the population pressure one would have expected that farmers in the commune would raise poultry which requires minimal land space, instead the cattle population far exceeds that of poultry. There are 3 443 cattle as compared to only 1 488 chickens. There are more cattle than sheep, pigs and rabbits. The situation in Gashikanwa commune, with regard to preference of cattle to small stock shows that the population pressure is not the only factor which determines the choice of livestock kept. Other factors such as cultural values or special needs (manure for example) are considered. However, in case Study II it has been demonstrated that intensive chicken keeping can result in enough manure production to enrich the soils. Lack of information may be the main reason for neglecting poultry breeding in Gashikanwa commune. The commune lies along the main road linking Bujumbura City and Tanzania. It is also possible that lack of inputs suppliers for chicks and feeds for example, may account for the lack of interest in poultry keeping. In addition, poultry compete for food cereal grains with humans unlike the ruminants. That could be one of the reasons for farmers in Gashikanwa to prefer ruminants to poultry.

#### Poultry value chain analysis on this location

There are no commercial chickens neither in Gashikanwa nor in Ngozi province. The whole north of Burundi does not have any commercial poultry. However, the Government had already introduced, in Ngozi province, layers breeding component in a Project funded by German Cooperation through GTZ. A poultry centre aimed to produce chicks had been established at Vyerwa. The population of the indigenous chicken, so low (1488 chickens) that is difficult to think about a poultry value chain.

## 3.5 POULTRY VALUE CHAIN ANALYSIS

### 3.5.1 Day-old chicks

Commercial farmers around Bujumbura City import chicks for their farms. The farmers appreciate the ease with which they get the best quality chicks of desired sex and breed. They take advantage of the proximity of Bujumbura International airport which is at about ten kilometers from most of the farms. Previously, chicks were imported from Europe, mostly from France and Belgium because of the facilities in transport offered by Air France and Sabena companies. The other reason for preference of imports from France and Belgium is the ease of communication by using a common language; French.

Due to the economic embargo, there were no more flights from those two countries to Burundi. And hence, the farmers explored other sources. Currently, chicks are imported from Uganda and Kenya. However, following the resumption of Brussels Airlines flights to Bujumbura, some importations from Europe are registered. Out of 17 268 Kg of live poultry imported from 2000 to June 2008, 16 680 Kg were chicks which is about 97% of all poultry importations.

As it had been mentioned above, chicks are produced locally in Burundi in three poultry farms: Mutoyi, poultry centre in Gitega and AVICOM in Bujumbura. Compared to the demand, the local production is very low and meets less than 5% of the total demand.

### 3.5.2 Chicken meat

Poultry meat production remains low. The demand is so high that meat prices have gone up by 40% from January 2008 to June 2008 and it is obvious that the trend will continue as long as the meat shortage is not solved. One of the ways to deal with this would be to increase broiler chicken production. This type of meat production should interest investors, especially the Government. It should include poultry meat promotion in her strategic plan of food security. The critical chain link in poultry meat production remains to be breeding of broiler parent chickens. If chicks become available in large numbers, progressive small scale farmers like those in Bugendana commune around Mutoyi, would benefit and increase production. At the national level, local production of chicks would expand broiler chicken production in the country beyond Bujumbura City. There is a ready market for broiler chickens even if production were to increase manifold.

### 3.5.3 Table eggs

Like in the poultry meat production, the bottlenecks are breeding stock (parent stock) and poultry feed manufacture. If farmers can import chicks from outside, even at a higher price than chicks locally produced, feeds manufacture will remain a bottleneck as long as local production of raw materials is low. The main constraints are cereals production (maize) and good quality seed cakes (cotton, palm, or sunflower seed cakes). Feeds are a very important factor in egg production, balance between feed costs and profit margin is low. On the average, 80 % of egg production costs are the cost of feeds.

The commercially produced eggs do not meet the national need of table eggs. Therefore expansion of poultry production whereby more farmers all over the country are encouraged to produce eggs is necessary to meet the country's needs for eggs. The current egg production level provides only about 1/3 (0.33) egg per capita per year.

### 3.5.4 Other species

Apart from chicken, very little information on other poultry species is available, given that their population is very low. Thus there is no poultry value chain for poultry species other than the chickens.

## Chapter 4

# Trade, marketing and markets

### 4.1 DOMESTIC MARKET

As mentioned above, poultry products are for people with good income. In every market there is a space reserved for sale of live chicken. The number of chickens sold depends on proximity to urban population. Rural areas are the sources of chickens sold in urban centres. Sale of chickens in areas away from urban centres is limited. In some rural markets far from urban centres, the number of chickens in a market varies between 20 and 50 depending on season. Larger numbers are however recorded during agricultural seasons. During the agricultural seasons, owners sell chickens in order to procure agricultural inputs and meet basic needs like school fees for their children. Other farmers sell their chickens in order to prevent crop damage by chickens. The poultry market fluctuation obeys these situations. The chicken prices vary from 75% to 100% depending on the season. Most of the rural markets are held two to three times a week.

In Cities (Bujumbura, Gitega, Rumonge and Ngozi), markets are daily and depend on supplies from other and primary markets. The daily average chicken sale is about a hundred in markets located in cities other than Bujumbura and its suburbs. At the Bujumbura city central market, about 350 chickens are sold daily. The prices are 50 to 100 % more expensive than prices in primary markets. However, these very high prices can easily double at certain periods. For instance, around Christmas holidays, a chicken bought at 3000 Fbu (3US\$) in the countryside can be sold at 9000 Fbu (9US\$) in Bujumbura city. Transport costs have been cited as among the factors which contribute to the high prices in cities. Because of lack of organized and appropriate transport, chickens are transported in buses with people and the owners pay a lot of money for just a small number of chickens. Part of reasons as to why there is no organized transport for chickens is the small number of chicken collected in different centers in the countryside which do not encourage investors to use dedicated and appropriate transport.

TABLE 5:  
Distribution of live bird markets for chickens

Location	Frequency	Average number of birds in the market per day				Total
		Chicken	Ducks	Guniea fowls	Others	
		Exotic (Commercial)	Exotic (Commercial)	Exotic (Commercial)	Dual purpose <sup>8</sup>	
Bubanza	2				20	20
Bujumbura	7				700	700
Bururi	3				30	30
Cankuzo	3				30	30
Cibitoke	3				50	50
Gitega	7				100	100
Karusi	3				20	20
Kayanza	7				60	60
Kirundo	3				50	50
Makamba	3				60	60
Muramvya	3				40	40
Muyinga	3				40	40
Mwaro	3				40	40

<sup>8</sup> Indigenous poultry

TABLE 5:  
Distribution of live bird markets for chickens

Location	Frequency	Average number of birds in the market per day				Total
		Chicken	Ducks	Guniea fowls	Others	
		Exotic (Commercial)	Exotic (Commercial)	Exotic (Commercial)	Dual purpose <sup>8</sup>	
Ngozi	7				60	60
Rutana	3				30	30
Ruyigi	3				20	20

## 4.2 IMPORT

Chicken imports concern mainly day old chicks (commercial layers) and table eggs. These imports have a market in Burundi as long as breeding of commercial parent stock is not undertaken on large scale. The imports come from France and Belgium. Recently Uganda and Kenya have been added on list and chicks are imported from Ugachick and Kenchick respectively.

The table below shows the imports by country of origin from 2000 to June 2008.

TABLE 6:  
Importance of imports by country of origin from 2000 to 2008

Country	Species	Quantity per year (Kg)									Total per species	Total poultry
		2000	2001	2002	2003	2004	2005	2006	2007	2008		
Belgium	Chicken	0	0	0	0	463	572	0	536	72	1643	2173
	Ducks/Goose/Turkeys	0	0	0	0	530	0	0	0	0	530	
France	Chicken	0	0	119	191	0	0	0	0	0	310	310
	Ducks/Goose/Turkeys	0	0	0	0	0	0	0	0	0	0	
Kenya	Chicken	0	0	983	967	262	475	0	0	345	3032	4425
	Ducks/Goose/Turkeys	0	0	0	775	388	100	0	130	0	1393	
Uganda	Chicken	292	0	2430	500	1180	0	360	71	244	5077	9339
	Ducks/Goose/Turkeys	0	1773	500	0	260	0	0	1275	454	4262	
Maurice	Chicken	285	108								393	598
	Ducks/Goose/Turkeys	97	108								205	
Saint Pierre et Miquelon	Chicken	0									0	80
	Ducks/Goose/Turkeys	80									80	
<b>Total</b>		<b>754</b>	<b>1989</b>	<b>4032</b>	<b>2433</b>	<b>3083</b>	<b>1147</b>	<b>360</b>	<b>2012</b>	<b>1115</b>	<b>16925</b>	<b>16925</b>

Source: BRB (Bank of The Republic of Burundi): Studies department

From 2000 to June 2008, out of 16845 Kg of imported chicks, 9339 Kg (55%) came from Uganda. Kenya is at the second position with 4425 Kg (26%) of imported live chicks. However, in 2006, only 360 kg of chicks were imported because of the import restrictions which were imposed due to the avian influenza scare. In the absence of direct flights, there are no more importations from France since 2004.

## 4.3 EXPORT

No live chickens or table eggs have been exported from Burundi.

#### 4.4 SLAUGHTERING FACILITIES

In rural areas, chickens are slaughtered behind their houses or restaurants in the open. It is very rare to find butchers in possession of slaughter table. Among the large commercial farms, only the poultry center of Mutoyi has a slaughter facility. It is located at Mutoyi in Bugendana commune, province of Gitega, about 140 Km from Bujumbura. It has piped potable water and electricity.

The slaughterhouse receives chickens raised at Mutoyi poultry center and the surrounding contract poultry farms. About ten employees of whom seven are women are working at the slaughterhouse. Slaughter activities are carried out twice a week (Mondays and Wednesdays). Although the slaughterhouse capacity is over 6000 chickens a day, it is operated under capacity and the daily average is about 1800 chickens.

Regarding the slaughter techniques, live chickens arrive in the slaughterhouse in closed plastic cages. Each chicken is placed upside down in a funnel system where it is wedged in and hanged. The chickens are killed by cutting the neck blood vessels. After that, chickens are removed from the funnel and defeathered. The defeathering is done by a special electric machine while the chicken is held by a worker. It is a rapid operation and takes just a few seconds. The action is perfected by workers who remove remaining down. A team mainly composed of women proceeds to cut and remove the legs and neck as well as removing the viscera. The chickens are then put on a table. Finally, the slaughtered chickens are put in buckets and then placed in a cold room for a night. The slaughtered chickens are transported to Bujumbura city for sale.

#### 4.5 POULTRY FEEDS

The quality of feeds depends on availability of ingredients and financial ability to purchase them. The following situation obtains in Burundi.

The indigenous chickens in rural areas scavenge around the homestead and around the rugo (familial enclosure) and feed on insects, wild seeds; green vegetation and kitchen waste. Sometimes, chickens may be given supplementary feeds in form of cereal grains and local brew wastes especially when they are confined during agricultural seasons. From observations, Chickens raised by farmers with large banana plantations or with a large herd of cattle obtain feed which meet most of the nutritional needs which leads to an increase in productivity. In such circumstances, chickens grow fast and, their average adult weight is bigger and laying is better than chickens raised by farmers without large farms or a large herd of cattle.

Commercial chickens are fed on commercial feeds and in addition, farmers add supplements such as cereals and vitamins in order to ensure good performance and avoid nutritional deficiencies.

Some commercial poultry farmers make their chicken feeds by mixing the required nutrients. The quality of such feeds may vary depending on the experience and availability of ingredients.

Production of feed ingredients used for making chicken feeds is as follows:

##### 1. Cereals

The total cereal grain production in Burundi in 2007 is estimated to be 290 000 tons classified as following:

- ✓ *Maize*: 160 000 tons
- ✓ *Sorghum*: 68 000 tons
- ✓ *Rice*: 43 000 tons
- ✓ *Eulesine*: 11 000 tons
- ✓ *Wheat*: 8 tons

## 2. Meals

They are oleaginous sub products made of residues obtained from grains and seed pressed to produce oils or solvents. Meals domestically produced are:

- ✓ *Cotton seed cakes*: they are produced by RAFINA from cotton delivered by COGERCO. The total production varies between 700 and 900 tons of which 80% is used in poultry feeds manufacture and 20% for cattle feeds. A kilogram of cotton seed cake costs 360 FBU (0.308 US\$) equivalent to the price of three eggs.
- ✓ *Palm nut cake*: They are produced by soap makers. The palm nuts from the South of Imbo contain nuts from which palm oil is extracted. According to OHP Rumonge in its 2007 annual report, the total palm fruit bunches received in different extraction units were estimated 60 124 tons. The total palm nut cake obtained was 4 700 tons. These numbers do not take into account the palm nut cake obtained from the nuts delivered by the craftsmen's oil extraction units. Certainly the amount of palm nut cake produced is higher than the total amount of cotton seed cake produced.
- ✓ *Peanut cake*: Mutoyi Cooperative incorporates peanut meals produced in the poultry feeds. Unfortunately, the quantities of peanut meals produced by Mutoyi Cooperative are unavailable. However, it must be small because the peanut production itself is small. It was estimated at 14 200 tons in 2007 for the whole country. Soybean production during the same year was estimated at 3 100 tons.
- ✓ *Sunflower seed cake*: A small sunflower oil extraction unit located in Kirundo province is in operation since some years ago. The sunflower meals produced yearly depends on the sunflower harvests. These were very poor in the last few years because of climatic changes with very low rain fall.

## 3. Cereal bran

They represent an average of 20 to 25 % of grain weight and depending on the type of milling machine, cereals bran may be put in different categories. The available cereal bran in Burundi are:

- ✓ *Wheat bran*: They are produced in Muramvya province by a factory dealing with wheat flour production. The factory produces an average of 6 tons of wheat bran per day and an annual average of 1560 tons. At the factory the price per kilogram varies between 100 to 130 FBU depending on the quality.
- ✓ *Rice bran*: This is produced all over the country by small and big units dealing with rice de-husking. In terms of capacity the SRDI, Imbo Regional Society for Development is the main rice bran producer. The unit de-husks *between* 9000 and 12 000 tons of rice a year and produces annually between 900 to 1400 tons of bran. The national production is estimated at 43 000 tons of rice and 5 160 tons of bran. The rice bran price varies between 30 to 40 FBU per kilogram.

In addition to cereals, cakes and cereal brans, poultry farmers import fish mainly from Tanzania for better performance. This is due to past experience that there was better egg production when feeds were supplemented with fish meal. Sometimes farmers add some amino – acids like lysine and tryptophane.

Mutoyi poultry center and some poultry farmers of Bujumbura use limestone and phosphates from Busiga and Matongo sites in Ngozi and Kayanza province. According to the national needs, raw materials for feeds are in short supply especially because cereals for human consumption are given highest priority.

There are very few poultry feed millers in the country. In the past, ALCOVIT factory produced up to 2500 tons per year while its full production capacity was 3000 tons. At that time, this quantity exceeded the domestic needs. In addition, there were small feed millers in Gitega, Ngozi, Bujumbura and Ruyigi provinces. Currently there are small feed mills in Bujumbura city and they make cattle feeds only whose quality is not guaranteed. Mutoyi centre has a poultry feeds selling point in Jabe and AVICOM sells feeds at its factory premises. There are no records available for the quantity of feeds.

## Chapter 5

# Breeds

### 5.1 EXOTIC BREEDS

Very few poultry farmers raise exotic breeds. Mutoyi cooperative has parent stock while others deal mainly with commercial layers for table eggs production and broilers. The commonest breeds are Red Grey, Warren and Harco for layers and Hubbard for broilers.

Beside these breeds, it is important to mention the layer breeds, namely, Sasso, Derco and ISA Brown, and Tetra breeds which have been imported by AVICOM from Ugachick of Uganda.

Generally the exotic breeds had shown satisfactory results as revealed by farmers that the performance was very good. However, it has been shown that the performance of the chickens depends on their origin. Thus, performance is higher for chickens imported from Europe (France and Belgium) than chickens from Uganda and Kenya. Therefore some farmers prefer chickens imported from Europe even when they are more expensive than those from Uganda and Kenya.

Pure breeds, such as Leghorn, Sussex and Rhodes Island Red, were introduced in 1970's and 1980's by agricultural development projects and research institutions. In September 2005, FAO imported ducks from Belgium and introduced 6000 ducklings into vulnerable families (affected HIV and Batwa) of Ngozi, Gitega provinces and Bujumbura city.

### 5.2 LOCAL BREEDS

The domestic poultry is made mainly of indigenous breeds, namely chicken, ducks and guinea fowl. However, the indigenous chickens are diversified. There is high variability from farm to farm and phenotypical differences are seen on the same farm. There are differences in plumage color and in size. The smallest are called « Sekaganda » and the biggest size is called « Imangubo or injogori ». There has not been any selective breeding among the indigenous chicken for genetic improvement. Some farmers prefer chicken with naked neck because it is claimed that their meat is better than the other types in terms of taste and meat production.

The indigenous chicken is a good brooder and produces eggs in two to three clutches of 10 to 18 eggs per clutch per year. She has also good maternal instinct. Even though the indigenous chicken is said to be robust, it is susceptible to the main poultry diseases such as Newcastle disease, Gumboro and fowl pox, just like the exotic breeds.

A study on the traditional farming shows that significant improvements on local chicken performance can be achieved by changing health and nutritional conditions. The following tables give an idea on the expected improvements.

Parameters marked with an asterisk (\*) are parameters influenced by the change in husbandry practice.

**TABLE 7:  
Performance of local chicken that received appropriate vaccination (especially Newcastle disease)**

<b>Production and technical parameters</b>	
<b>Reproduction parameters</b>	
Age to first egg (in months)	6
Number of eggs per hen per year	80*
Number of eggs left for incubation per hen per year	14*
Hatchability (%)	60%
Number of chicks hatched /year/hen	9,8*
Males and females ratio at hatching (%)	50
<b>Mortality and culling</b>	
Chick mortality	40%
Adult chicken mortality	20%
Carcass yield	80%
<b>Production parameters</b>	
Weight of eggs (g/unit)	40
Age of chicken at market (days)	200
Age of females at culling (days)	730
Age at culling of males used in reproduction (days)	1095
Weight of chicken at market (kg) : chicken	1,2
Weight of females at culling (kg) : hens	1,5
Weight of males at culling (kg) : cock used in reproduction	2
<b>Total production generated</b>	
Chicken produced by a hen / year (number)	7,84*
Chicken meat produced/ by a hen / year (number)	9,41
Culled hen produced by a hen/year (number)	0,45
Meat from culled hen produced by a hen/year (kg)	0,68
Culled cock produced by a hen/year (number)	0,06
Meat from culled cock produced by a hen/year (kg)	0,12
Egg production (number of eggs not incubated by a hen/year)	66*
Egg production (kg/hen/year)	2,64*

**TABLE 8:**  
**Performance of local chicken that received appropriate vaccination (especially Newcastle disease) and supplementation with cereals**

<b>Production and technical parameters</b>	
<b>Reproduction parameters</b>	
Age to first egg (in months)	6
Number of eggs per hen per year	50
Number of eggs left for incubation per hen per year	10
Hatchability (%)	60%
Number of chicks hatched /year/hen	9,8*
Males and females ratio at hatching (%)	50
<b>Mortality and culling</b>	
Chicks mortality	40%
Adults mortality	20%
Carcass yield	80%
<b>Production parameters</b>	
Weight of eggs (g/unit)	40
Age of chicken at market (days)	200
Age of females at culling (days)	730
Age at culling of males used in reproduction (days)	1095
Weight of chicken at market (kg) : chicken	1,2
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<b>Total production generated</b>	
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Meat from culled hen produced by a hen/year (kg)	0,68
Culled cock produced by a hen/year (number)	0,06
Meat from culled cock produced by a hen/year (kg)	0,12
Egg production (number of eggs not incubated by a hen/year)	66*
Egg production (kg/hen/year)	2,64*

## Chapter 6

# Veterinary health, public health, biosecurity measures

### 6.1 HIGHLY PATHOGENIC AVIAN INFLUENZA

Avian influenza is a threat not only to poultry but also to human health. Therefore, AI is considered as a potential threat that needs serious preventive measures.

In Burundi, no case of AI outbreak has been diagnosed so far. However the risk of AI introduction does exist. In fact, on the one hand, Burundi is on migratory birds flyways and has wetlands which is a habitat for migratory birds especially the northern lakes in Bugesera region and the Kibira forest. On the other hand, the country depends on importation of layer and broiler day old chicks due to the shortage of them. Importation poses a danger for the introduction of AI from another country.

Most of the time, epidemiological services, especially the veterinary field agents and those in charge of the wildlife, are unable to detect the disease at the very early stage of an outbreak of the disease because they lack the required skills.

The consequences of an epidemic AI outbreak in Burundi would be catastrophic on the socio-economic situation of Burundian population which is already bad due to ten years of civil war. For example, in 2006, a false alarm and scare of AI outbreak led to a severe loss in national poultry business. The information on the outbreak of the AI in some African countries caused panic with severe consequences, thus:

- In rural areas, people abandoned poultry rearing and chicken were sold at very low prices. Consumers boycotted poultry meat, eggs and any poultry products.
- In towns, the poultry business which was recovering from the negative effects of the civil war and the trade embargo was seriously hit by the measures taken in order to prevent the AI infection. Control measures taken exacerbated the situation:
  - Poultry products were boycotted following the information from radio and television. The police were deployed and enforced the ban on egg sales especially near the Bujumbura markets.
  - The big consumers such as restaurants and bakers stopped buying eggs and meat from producers.
  - Egg producers sold their products at very low prices but still people refused to buy. Large quantities of eggs were destroyed. Some of the poultry farmers abandoned the poultry business.
- At Mutoyi farm, a boycott on chicks and eggs was observed by rural farmers and hence chicks and eggs had to be destroyed. Incubation of fertilized eggs was interrupted.
- Besides those direct consequences on producers, it is important to mention the loss of confidence in poultry business by farmers and poultry business financing institutions.
- The scarcity of poultry and their products, which is observed today in the market, has led to the high prices of eggs, egg products, poultry meat and other meat products.

It is very important to take appropriate measures in order to bring back the confidence of the population in poultry production and to support and encourage to restart the poultry business throughout the country.

Efforts are being made in the country to have preparedness plans for HPAI. Thus FAO, through the OSRO/RAF/602/BEL Project « Prevention and control of the AI and reinforcement of veterinary services in the African Great Lakes region » has contributed towards the formulation of preparedness plans in case of an HPAI outbreak.

The project includes three countries, namely: Burundi, Democratic Republic of Congo and Rwanda. It was launched in March 2007 and began its activities in July 2007. National consultants have been recruited and work on epidemiology, laboratory diagnosis of HPAI and on communication is progressing well.

The main achievements after 14 months were:

➤ **Reinforcement of the veterinary services and Avian Influenza monitoring and surveillance**

The results about that objective are listed below:

- Identification and setting up of the surveillance stations;
- Workshops on Avian Influenza diagnosis have been held;
- Gathering all information about AI;
- Reinforcement of the collaboration among central services, field workers and specialized NGO in avifauna
- Acquisition of laboratory equipments and materials
- Training on sampling techniques, handling, storage and shipping of samples to the veterinary laboratory and the diagnostic techniques.
- Use of manuals on the surveillance and recording and communication on HPAI and other transboundary animal diseases.

➤ **Capacity building in communication and public awareness**

Activities and achievements related to communication are:

- Workshop on HPAI for media personnel;
- Informative research on HPAI, gathering information and techniques for analysis and treatment of information related to HPAI,
- Production and distribution of manuals, broadcasting news on all media and spreading articles, theatre on HPAI through radio and television, in both national and French languages.
- Setting up training topics related to the role of poultry farmers' associations and communication techniques,
- Setting up a group of journalist focal points in the fight against HPAI in Burundi
- Creation of a plat-form of communication specialists on HPAI in RDC and a six months' plan on communication (April to September 2008)
- Sensitisation meetings with partners involved in HPAI (such as custom personnel, environment policemen, air policemen, wildlife agents, schools) on their role in prevention of the HPAI.

➤ **Control and prevention of HPAI and other transboundary diseases.**

Activities and achievements from the objective:

- Workshop on the validation of the national prevention plan of the HPAI;
- Preparation of the document on the setting up a steering committee to implement the national prevention plan of the HPAI
- Harmonisation of the national plans for urgent prevention of HPAI
- Elaboration of an active surveillance plan and a schedule of sampling in order to make early diagnosis in case of an HPAI outbreak or any transboundary animal disease outbreak (e.g. FMD, APP, ND and CBPP)

## 6.2 OTHER MAJOR POULTRY DISEASES

Regularly updated information on the status of notifiable and other transboundary poultry diseases, can be found on websites:

The FAO Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases available at [www.fao.org/ag/againfo/programmes/en/empres/home.asp](http://www.fao.org/ag/againfo/programmes/en/empres/home.asp)

The OIE World Animal Health Information Database (WAHID) available at [www.oie.int](http://www.oie.int)

Diseases mostly found in poultry farms are coccidiosis, pullorum, fowl pox and Newcastle disease. The first two diseases occur in all seasons while the latter two have a seasonal occurrence. Fowl pox is most prevalent during the dry season in June to December while Newcastle disease occurs during the rainy season in March to May. Coccidiosis is common among the local chickens where farmers are not familiar with and therefore is not controlled. Losses are high especially in young chickens. Coccidiosis may be found in poorly managed commercial chicken farms where hygiene is poor. Coccidiosis outbreaks among commercial poultry occur frequently in Imbo plains of Bujumbura where most of the poultry sector 2 and 3 farms are located. This is because the plains have high humidity and high temperatures. The two factors are conducive for coccidiosis outbreaks.

It is also in the rural area that infectious diseases are found the most, because of the lack of specific vaccinations. In addition, due to the inadequacy of technicians trained in poultry diseases, diseases are not diagnosed. This is why any disease leading to a general weakness of the chicken is said to be "agahweka" or drowsiness, a word related to the main symptom commonly observed in many poultry diseases

## 6.3 BIOSECURITY MEASURES

Biosecurity measures against HPAI have been initiated by the Government with the support of FAO. Biosecurity measures deal with the prevention and control of the HPAI and transboundary diseases. The measures implemented so far in Burundi are:

- Reinforcement of the veterinary services and Avian Influenza monitoring and surveillance
- Capacity building in communication and public awareness creation
- Preparedness plans for the prevention and control of HPAI and other transboundary diseases.

Among all those measures, the public sensitisation at all levels is of greatest impact.

In the large farms, biosecurity measures concern the control of visitors from and to the farms. But the total human traffic control is not easy since farm workers live outside the farms. In addition, there is no a minimum distance required between two neighboring farms.

Other shortcomings are observed in the poultry transportation. There is no regulation on how chicken should be transported and no specific equipment for chicken transportation is provided or enforced as a requirement. Also, there is no check point for chicken en route from small primary markets to the large towns. In the markets, birds are sold in small stands open to all without any restriction or protection. For instance in the main market of Bujumbura, the stand for chicken is 25 m<sup>2</sup> for about 300 to 500 birds daily.

In farms with commercial layers, hens are often well kept in good housing that provides comfort enough for optimal production. Hygienic conditions are also of acceptable level. However the recent high demand for the poultry manure may have some negative effects on hygiene if the farmer does not pay attention to sanitary conditions that may come from a high quantity of manure being allowed to stay long in the poultry house.

In family farms on the other hand, indigenous free range chickens are housed in small shelters which are not very solid. They are used as night shelters and are in most cases built by children, they are intended just to protect chickens from predators rather than comfort of chickens. Because of the small size of these shelters, it is difficult for an adult person to get inside; they are rarely cleaned and hence their hygiene is poor.

In some cases, chickens are housed in the dwelling houses of the owner. They sleep in the house during night and are let out during the day to scavenge for feed. About 25 % farmers with indigenous chickens have separate shelters for their chickens but for security purposes, during night, chicken are housed in the dwelling houses of the owner to avoid robberies.

## Chapter 7

# Current policies, legal framework

### **Policies**

The national agricultural strategy 2008-2015, the only reference document for any intervention in the agriculture and livestock sector, has chosen as the main objective; the rehabilitation and the intensification of animal production through the following actions:

- Consolidation of the animal restocking that was launched in 1998,
- Rehabilitation of the veterinary facilities and facilities used for the production and distribution of veterinary and other livestock inputs,
- Promotion and improvement of animal health care,
- Diversification and improvement of animal production,
- Support small scale farmers to acquire inputs for production, knowledge and skills,
- Use of improved animal breeds,
- Use of artificial insemination throughout the country,
- Provision and diversification of improved pasture seeds,
- Provision and diversification of feedstuff other than,
- grass,
- Utilization of local raw materials in making animal feed rations.

### **Legal framework**

#### *Importation*

Poultry farmers, just like other businessmen operating in the agriculture sector, are exempted from paying import duty as spelt out in the ministerial ordinance n° 540/298/1993 of the June 11 – 1993. This ordinance deals with the exemption on taxes of customs and any agricultural inputs and equipments used in agricultural production.

According to this ordinance; importation of live poultry, fertilized eggs and agricultural equipment, animal medicines vitamins, vaccines and feedstuffs used for poultry production is free of custom duties and transaction charges. This measure is appreciated by poultry farmers who also wish to have priority in acquiring loans to restart poultry business.

In the legal field related to animal health, the law n°1/04 of 10 September of 2002 lists the contagious and highly transmissible diseases. It points out that the measures that guide the veterinary policy; the health inspection and hygiene of food on the Burundian territory are fixed by ordinance.

Nevertheless, the lack of veterinary services and appropriate infrastructure at custom stations where infected animals may be quarantined constitutes a constraint to the implementation of the mentioned law<sup>9</sup>. Moreover, very often, policemen and customs agents at the custom stations pose as and perform the duties of veterinary technicians. The communal administration may be interested more than anything else, on collecting money to the detriment of the health control of imported animals.

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<sup>9</sup> Rapport d'information sur le fonctionnement des secteurs agricole, pastorale et environnementale effectué par la Commission spéciale chargée des questions agro-pastorales en dates du 6 mai au 3 juin 2008.

### ***Health***

There is no specific animal health policy in the country. The document in preparation on the rehabilitation and sustainable development of the agricultural sector gives the main objectives of the 2006-2010 vision as being: (i) to improve access to veterinary services, medicine and other inputs (ii) to analyze the national animal health situation in order to set plans for urgent interventions against important diseases, rehabilitate and reinforce laboratories across the country for better diagnosis.

From legal documents prepared in the PACE project; it is obvious that the Government wants to privatize the veterinary and pharmaceutical professions.

### ***Institutional framework***

In the field, a failure in the coordination of veterinary activities is observed. Veterinary technicians and services from the commune to the province depend administratively on the DPAAE (Livestock and Agriculture Provincial Directorate) which is under the Extension General Direction. Therefore, there is no direct link between the Livestock General Directorate and the field services.

## Chapter 8

# Analysis

### 8.1 CURRENT STRENGTHS AND WEAKNESSES OF THE POULTRY SECTOR

The poultry sector is primarily composed of chicken and a small number of ducks that have been introduced in rural farms by FAO. In rural areas, local chicken generate very little income because of the poor health conditions, poor housing and management as well as poor feeding. Performance is low, for instance, on the average only 50 eggs are laid per hen per year; hatchability is less than 60%, and chick mortality is high (up to 40%). The Newcastle disease is the main cause of mortality among rural chickens and hence is the main constraint to the poultry development in small scale family farms.

Up to 1995, small scale farms with modern chicken (from imported chicks) were developed around towns. In the following years, they were abandoned due to lack of inputs such as: vaccines, feeds and imported chicks. However, some commercial poultry farms are restarting business near the capital and they are the ones that record the best performance.

#### ***Opportunities***

As the lack of enough feeds was recognized as the major constraint to the poultry development, it is important to identify the opportunities to improve the feeds stuff yield. Therefore, the dense water sources (hydrography) and the good rainfall, a large number of rural manpower, a large variety of soils and microclimates suitable for good production that do exist in Burundi but are not adequately used to intensify and diversify the agricultural and livestock productions. It is important to know that there is no coherence between demographic growth and agriculture production.

If those opportunities were correctly used, the agriculture and livestock sectors would make significant improvements. The major factors to start with are:

- Microclimates, and soils : allow for diversify and intensive production
- Large rural manpower: small scale farmers are willing to change from their traditional ways of farming to modern ones.
- Enough rain falls: with 6 to 9 months of rain, it is possible to grow crops twice a year on the same plot especially for non perennial crop.
- Important hydrographical net (from Tanganyika Lake to the Northern lakes and numerous marshes and rivers) which are good for irrigation and fish farming and seed production.
- Fertile soils suitable for intensive farming especially in regions of Imbo, Mumirwa, Buyenzi, Bweru, Bugesera, Moso and a part of the Kirimiro region.
- The so far uncultivated marshes (large area) would allow a third cultivation season instead of only two.
- Dolomites, limestone and phosphate resources; these are abundant and would contribute to the improvement of the soil fertility given that only organic manure is largely used.

#### ***Constraints/Weaknesses***

Constraints in the poultry sector include the health, feeding and institutional aspects.

#### ***Health constraints***

The avian influenza is still a threat to the poultry industry. It is important to maintain the measures taken to prevent its introduction in the country and reinforce the checking of all imported birds.

Inadequate laboratory facilities and shortage of human resources in disease diagnosis are the other important constraints. In addition, the lack of appropriate medicine and drug stores which are operated by non professional people is one of the health problems facing the poultry industry.

Also, the lack of the Newcastle disease control policy constitutes an important constraint to the small scale poultry development particularly in rural areas. Each year, many farmers loose a lot of chickens due to Newcastle disease outbreaks. However, significant results could be achieved if measures of control such vaccination and intensive (housed) rearing were carried out.

#### *Nutrition and feeding*

Crop, livestock and fish production are decreasing year by year while human population growth and needs are getting higher and higher.

From 1982 to 2007, crop production decreased by about 26% while during the same period of 25 years, the population increased by about 45%. Moreover, since poultry feeds are made from feed used by humans, good nutrition will always be the major challenge to the poultry development as long as the crop (grains) production will be insufficient.

The lack of feed mills to make appropriate poultry feeds is another problem especially for the imported and improved breeds.

#### *Institutional constraints*

Three major institutional constraints may be pointed out as follows:

- Limited capacities of the services responsible for the production backstopping (research, extension, inputs production and distribution and post harvest technology) ;
- Low participation of the private sector in financing agricultural and livestock initiatives
- Lack of involvement of specialist organisations such as agronomist association or veterinary specialists association in farming to serve as examples.
- Failure in coordination and harmonisation of intervention approaches

Besides those direct constrains, there are indirect socio-economic constraints as follows:

- Insufficient opportunities to undertake agricultural and livestock income generating activities;
- Low purchasing power and low education of the rural population which limit their access to agriculture and livestock loans from banks and to other production inputs.
- The lack of specialized mechanisms of rural financing;
- Burundi is a land locked country and the country has poor road infrastructure, thus making it difficult to trade in livestock inputs
- Lack of a good investment policy that would bring more local and foreign investors to start the poultry business in Burundi (loans, fiscal measures, security)

## **8.2 PROSPECTS OF THE POULTRY SECTOR OVER THE NEXT FIVE YEARS**

Poultry products are highly prized in Burundi and are in high demand. The local production does not meet the demand. The main suppliers are rural farmers with indigenous chickens while the commercial farms in Bujumbura and Mutoyi serve the Bujumbura market. No major poultry projects or programs are planned by the Government either on a short term, or long term. Some few private entrepreneurs are slowly starting the poultry business although the number of chickens per farm is low.

## Annex I

**Who is who (contact list)**

Category	Government
Name	Direction Générale de l'Élevage (DGE) (Livestock General Directorate)
Address	BP 61 Gitega, Burundi
Phone	257 22 40 2133
Fax	257 22 40 2133
Email	Not available
website	Not available

The DGE is dependent on the Ministry of Agriculture and Livestock. It is in charge of the interpretation and implementation of the national policies in the livestock sector, livestock technology improvements, enforcement of the animal health legislations and promotion of the production of the livestock inputs. The DGE has to backstop the DGMAVA in training of the field technicians. It has three departments: (i) Animal health (DSA), (ii) Animal Production (DPPA), and (iii) Water, Fishing and Fish breeding (DEPP). The DGE includes the National Artificial Insemination Centre and the National Veterinary Laboratory. (LNV).

Category	Government
Name	Direction de la promotion des productions animales (Directorate of livestock production promotion)
Address	BP 61 Gitega, Burundi
Phone	257 22 40 2089
Fax	257 22 40 2133
Email	
website	Not available

One of the 3 Directorates of the Direction Générale de l'Élevage. It is in charge of the implementation of the national policy regarding the animal production. It is the one in charge of the poultry centre of Gitega.

Category	Government
Name	Direction de la Santé Animale (Animal Health)
Address	BP 61 Gitega, Burundi
Phone	257 22 40 2079
Fax	257 22 40 2133
Email	
website	Not available

One of the 3 Directions of the Direction Générale de l'Élevage. It is in charge of the implementation of the national policy regarding the animal health

Category	Gouvernement
Name	Le laboratoire national vétérinaire (National Veterinary Laboratory)
Address	BP 227 Bujumbura, Burundi
Phone	257 22 22 2553
Fax	257 22 22 2553
Email	
website	Not available

Under the Animal Health Authority, it analyses samples and undertakes the diagnosis of diseases nationwide.

Category	Gouvernement
Name	La DGMVA
Address	
Phone	257 22 40 2097 257 22 40 2140
Fax	
Email	Non disponible
website	Not available

The DGMVA is responsible for the improvement of the Agricultural extension services. It is the link between Research institutions and the farmers. It includes the Department of agricultural training and extension (DAFA). The DPAE and the CMM are under its control.

Category	Gouvernement
Name	BNDE
Address	BP 1620 Bujumbura Burundi
Phone	257 22 22 3775
Fax	257 22 22 6045
Email	Not available
website	Not available

La Banque Nationale pour le Développement Economique (National Bank for Economic Development) is the unique bank specialized in agricultural loans in favour of entrepreneurs who want to start agricultural business.

Category	Private Company
Name	Budoromyi Salvator
Address	Quartier 10 Industriel, Bujumbura
Phone	257 77733731
Fax	
Email	Not available
website	Not available

The company produces eggs for consumption. The hens are imported from Belgium. The eggs are sold in Bujumbura city by employees who use bicycles. Egg sellers get supplies directly from the poultry farm which is located in the industrial area of Bujumbura city. The feed is made on the farm. The company sells the poultry manure which is highly appreciated by crop farmers. The poultry manure is sold at 70 Burundi Francs per kg which is about 60 US\$ a tonne.

Category	Private Company
Name	AVICOM s.a.
Address	Mutimbuzi, BP 2880 Bujumbura, Burundi
Phone	257 22 22 6099
Fax	257 22 22 7786
Email	andersen@usan-bu.net
website	Not available

Produces eggs for consumption and make feed for its poultry farm and also for sale. The production of commercial layer chicks and broiler chicks is suspended for the moment because of the problems of layer breeding stock supply. The company has an incubator facility for up to 42000 egg capacity but operates now at 50% of its capacity. The poultry manure is sold to crop farmers who grow market vegetables, fruits and rice.

Category	Private Company
Name	Coopérative de Mutoyi
Address	Mutoyi, Commune Bugendana, Gitega, Burundi
Phone	257 22 21 2918
Fax	
Email	Non available
website	Non available

Integrated cooperative enterprise is run by Italian catholic missionaries. The cooperative raises breeders, incubates eggs and supplies chicks to cooperative members. Cooperative members produce eggs and broilers that are sold to the Mutoyi Cooperative which ensures the sale of those products in Bujumbura and Gitega cities. The surplus of chicks is sold at Gitega and Bujumbura markets but the demand is too high for Mutoyi farm alone to meet. Apart from importations by poultry farmers in Bujumbura, Mutoyi Cooperative is the only integrated poultry farm in country that supplies inputs to farmers, projects, NGOs and other associations that are involved in poultry farming. At the moment, Mutoyi farm is overwhelmed by the high demand of chicks. Some purchase orders wait for up two years to be supplied with the chicks. Some chicks are taken to neighbouring countries by smugglers (people near the borders buy chicks at Mutoyi and sell them out side the country). Mutoyi cooperative has in addition slaughter facilities. The catholic mission settled at Mutoyi in 1974 and begun poultry farming in 1978.

Category	Private Company
Name	Hicuburundi Joseph
Address	Not available
Phone	(257) 7923788
Fax	
Email	Not available
website	Not available

The company suspended its operations in 2006 due to the measures taken to prevent the introduction of the highly pathogenic avian influenza. Hicuburundi Joseph used to produce eggs from commercial hens from chicks imported from France and Belgium. In 1998, the company started with the support of the Government, the production of the layer and broiler breeds from fertilized eggs imported from France and Belgium. Hicuburundi had to give up this activity following the disappointing hatchability at the high altitude in Gitega town (20%). In 1999 the incubator was moved to Bujumbura (which is at 760m above sea level) where it was expected to function better, but then the importation of eggs became difficult due to the closure of the Bujumbura International Airport because of the civil war.

Category	Private Company
Name	SOBEL (Georges COUCOULIS)
Address	Mutimbuzi
Phone	(257) 22 214920 (257) 77731028
Fax	Not available
Email	Not available
website	Not available

Exports ostrich eggs, the farm has 40 ostriches. This farm is 12 km from Bujumbura city and three km from the Bujumbura airport.

Category	Private Company
Name	MUNEZERO Gaudence
Address	Rohero (Kiriri), Bujumbura
Phone	257 79921062
Fax	257 22223642
Email	nicole_ntag@yahoo.com
website	Not available

Produces chicken eggs for consumption. The flock size is 12000 layers.

Category	Private Company
Name	Mohamed Yusuf
Address	BP 965 Bujumbura Burundi
Phone	257 22 24 8712
Fax	
Email	Not available
website	Not available

The company produces eggs and broiler chicken from chicks imported from Uganda and Kenya. Mohamed also makes poultry feed for his farm and for sale.

Category	Private Company
Name	KANTUNGEKO Ferdinand
Address	BP 547 Bujumbura
Phone	257 77 748018 257 22 22 18 26
Fax	Not available

Email ferdikantungeko@yahoo.fr

website Non available

Imports one day old layer chicks and produces table eggs for sale. After two years of interruption, the company has recently imported from Belgium 2000 one day old commercial chicks. At the moment, the owner is satisfied with the laying performance. Before they reached 5 months of age, the egg production was 40%.

Category Private Company

Name I&E KISSCANADA

Address Rohero Bujumbura

Phone 257 77 824990

257 22 25 7496

Fax 257 22 25 7496

Email Not available

website Not available

The company has an egg incubator and plans to raise breeders for commercial layers.

Category Private Company

Name BUCIBARUTA Félicien

Address 30, Avenue de la Mission ; BP 1933 Bujumbura

Phone 257 22 22 2047

Fax

Email Not available

website Not available

Is a Kenchick Representative in Burundi. All the importations of chicks from Kenya to Burundi have to get his clearance prior to shipping. The clearance is given after the farmer who wants to import chicks has shown satisfactory capability in poultry farming.

Category Private Company

Name Pharmacie INTERHEHA

Address 30, Avenue de la Mission; BP 1933 Bujumbura

Phone 257 22 22 2047

Fax Not available

Email Not available

website Non available

Veterinary Pharmacy specialised in poultry medicines, vaccines and premixes. It also supplies poultry equipment.

Category Private Company

Name Coopers Burundi

Address BP 2257 Bujumbura Burundi

Phone 257 22 22 5515

257 79 910650

Fax	Not available
Email	Not available
website	Not available

Coopers Burundi is a Veterinary Pharmacy which supplies medicines, vaccines and premixes for poultry and other livestock species. It also supplies poultry equipment.

Category	Private Company
Name	Alchem
Address	Avenue de la Victoire, BP 2491 Bujumbura, Burundi
Phone	257 22 22 2632
Fax	257 22 22 2955
Email	alchem@usan-bu.net
website	Not available

Veterinary Pharmacy that supplies some livestock medicines and premixes for poultry and other livestock species.

Category	Private Company
Name	Pharma Bolena
Address	4, Boulevard Patrice Lumumba, BP 2578 Bujumbura, Burundi
Phone	257 22 22 1321 257 77 789955
Fax	257 22 24 8209
Email	Bolena23@hotmail.com
website	Non available

Is a Veterinary Pharmacy which supplies medicines, vitamins and premixes for poultry and other livestock species.

## Annex II

## List of major projects – poultry sector

Both on-going and closed projects are listed.

1	Project:	Projet de Développement Agro-Pastoral du Bututsi (PDAPB)
	Agency:	BAD
	Duration:	1989-2007
	Geographical area:	Bututsi natural Region
	Directly benefiting:	445 poor and vulnerable farm households
	Status:	closed

The project had granted 4150 young layer hens to 41 associations composed of 244 women and 201 men. The grant also included feeds, medicines and also training. The project is still keeping 250 layer hens for demonstrations.

2	Project:	OSRO/RAF/502/SXE
	Agency:	FAO
	Duration:	2005-2007
	Geographical area:	Gitega, Ngozi et Bujumbura
	Directly benefiting:	2000 poor and vulnerable farm households
	Status:	closed

The project imported from Belgium, 6000 ducks of Barbarie breed. After rearing them for three months the ducks were distributed to 2000 vulnerable farm households: HIV/AIDS affected people supported by SWAA (Society of Women Against AIDS) Burundi at Gitega and Ngozi and by the Office of the Associations of the Northern Quarters (Kamenge youth centre) at Bujumbura. The Batwa, a minority group who are socially and economically marginalized were among the beneficiaries.

The project has trained beneficiaries on duck rearing and distributed training materials. In addition to the training and the technical follow up, beneficiaries were given feeds which was enough for 4 months, and also medicines to last for up one year and six months.

3	Project:	Projet de Réhabilitation Agricole et de Gestion durable des Terres au Burundi (PRASAB)
	Agency:	Banque Mondiale
	Duration:	2004-2010
	Geographical area:	The whole country
	Directly benefiting:	Local communities
	Status:	On going

The project aims to improve the production and the sustainable land management. Its mission includes the financing and support to agricultural projects addressed by local community organisations. In this context, many farmers get young layer hens (4 months old).

4	Project:	Programme transitoire de reconstruction post conflit (PTRPC)
	Agency:	FIDA
	Duration:	2006-2012
	Geographical area:	3 provinces: Bujumbura rural; Bururi and Ruyigi
	Directly benefiting:	26 000 small-scale farm households identified by local community
	Status:	On going

The Post Conflict Reconstruction Temporary Program (PTRPC) in its agriculture rehabilitation strategy will provide livestock and poultry to vulnerable people.

5	Project:	Projet d'Appui à la Reconstruction du Sous-secteur de l'Élevage (PARSE)
	Agency:	FIDA
	Duration:	2007-2012
	Geographical area:	7 provinces: Cibitoke, Gitega, Karuzi, Kayanza; Bujumbura rural; Bururi and Ruyigi which extend up to 45% of the national area.
	Directly benefiting:	93 000 small-scale farm households identified by local community
	Status:	On going

The main objective of the PARSE is to contribute to poverty alleviation through the rehabilitation, support and reconstruction of the livestock sector in seven provinces that suffered the most from several years of civil war. Vulnerable people will receive from the PARSE 5 young layer hens (3 months old). In addition, training sessions on Newcastle disease and vaccination techniques against that disease will be held for 8750 rural women. It is estimated that an annual production target of 5 million eggs and 2200 tonnes of chicken meat will be reached.

## Annex III

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