FAO ANIMAL PRODUCTION AND HEALTH DIVISION
EMERGENCY CENTRE FOR TRANSBOUNDARY ANIMAL DISEASES
SOCIO ECONOMICS, PRODUCTION AND BIODIVERSITY UNIT

EGYPT

Poultry sector country review

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This review is based on the following report:
The Structure and Importance of the Commercial and Village Based Poultry Systems in Egypt

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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[1].

The original report by Dr Farid A. Hosny was edited by Ms Jenny Schwarz in August 2008 and has been supplemented with data from the FAO statistical database (FAOSTAT), the World Bank and the United Nations Population Division.

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

Contents

Acronyms and abbreviations

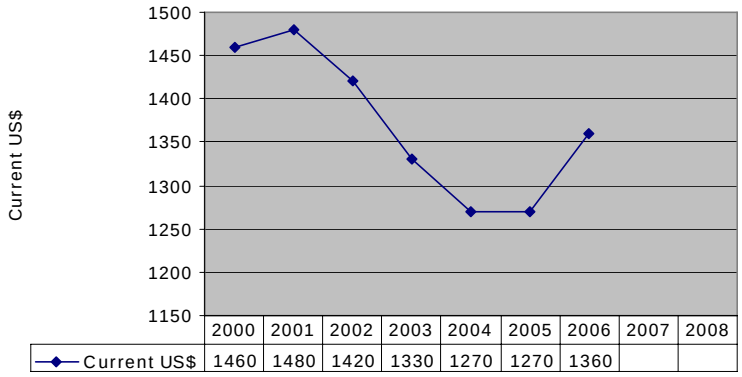
BGP	Broiler Grand Parents
CAPMAS	Central Agency for Public Mobilisation and Statistics
DES	Dietary Energy Supply
DOC	Day Old Chicks
FCR	Feed Conversion Ratio
GEM	Gender Empowerment Measure
GP	Grandparents
GPC	General Poultry Company
HDI	Human Development Index
HDR	Human Development Report
HPAI	Highly Pathogenic Avian Influenza
IMR	Infant Mortality Rates
LDOC	Layer Day Old Chicks
LE	Egyptian Pound (1 LE = approximately 0.174 US$)
MALR	Ministry of Agriculture and Land Reclamation
MDG	Millennium Development Goals
MENA	Middle East and North Africa
MMR	Maternal Mortality Rate
UFMR	Under-Five Mortality Rate

Chapter 1

The country in brief

Country:	Egypt		
Location:	Northern Africa, bordering the Mediterranean Sea, between Libya and the Gaza Strip, and the Red Sea north of Sudan, and includes the Asian Sinai Peninsula		
Population, total	74,166,496 (2006)	*Source:*	*World Bank, July 2008*
Population, growth rate:	2% (2006)	*Source:*	*World Bank, July 2008*
Economy group:	Lower middle income	*Source:*	*World Bank, July 2008*

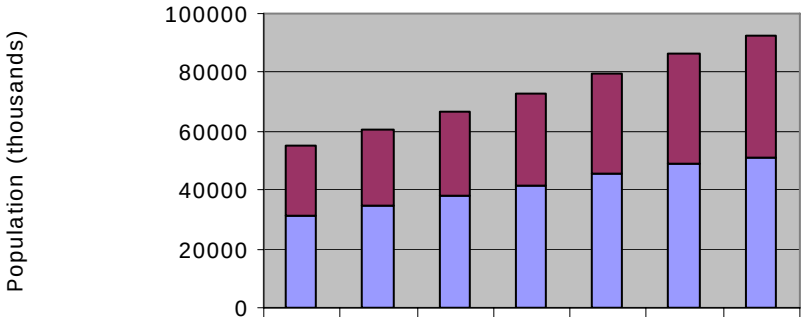
FIGURE 1: **Gross national income (GNI) per capita (Atlas method, current US$)**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Current US$	1460	1480	1420	1330	1270	1270	1360		

Source: World Bank, July 2008

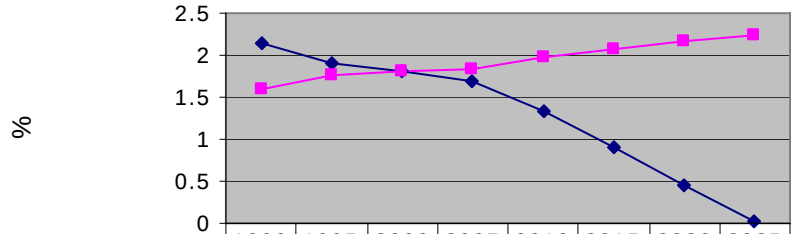
FIGURE 2: **Demographic profile**



	1990	1995	2000	2005	2010	2015	2020
Urban population	23972	25966	28364	31062	34041	37577	41684
Rural population	31165	34683	38165	41788	45496	48641	50894

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, July 2008

FIGURE 3: **Annual population growth rates**



	1990-1995	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030
Rural annual growth rate	2.14	1.91	1.81	1.7	1.34	0.91	0.46	0.02
Urban annual growth rate	1.6	1.77	1.82	1.83	1.98	2.07	2.16	2.24

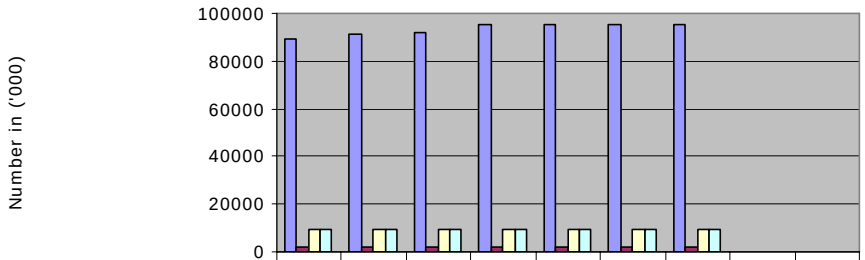
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, http://esa.un.org/unup, July 2008

Chapter 2

Profile of the poultry sector

2.1 NATIONAL POULTRY FLOCK

FIGURE 4: **National poultry numbers**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chickens	89000	91000	92000	95000	95000	95000	95000		
Turkeys	1850	1850	1890	1950	1850	1850	1850		
Ducks	9100	9100	9200	9200	9200	9200	9200		
Geese and guinea fowls	9100	9100	9100	9100	9100	9100	9100		

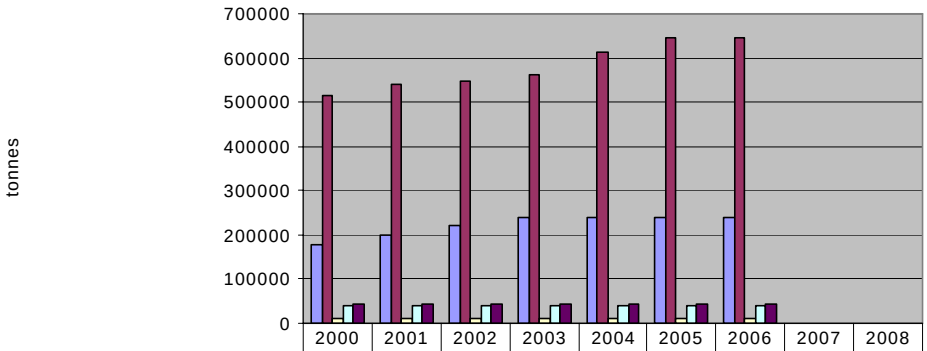
Source: FAOSTAT, July 2008

2.2 GEOGRAPHICAL DISTRIBUTION OF POULTRY FLOCKS

This information has not yet been sourced.

2.3 PRODUCTION

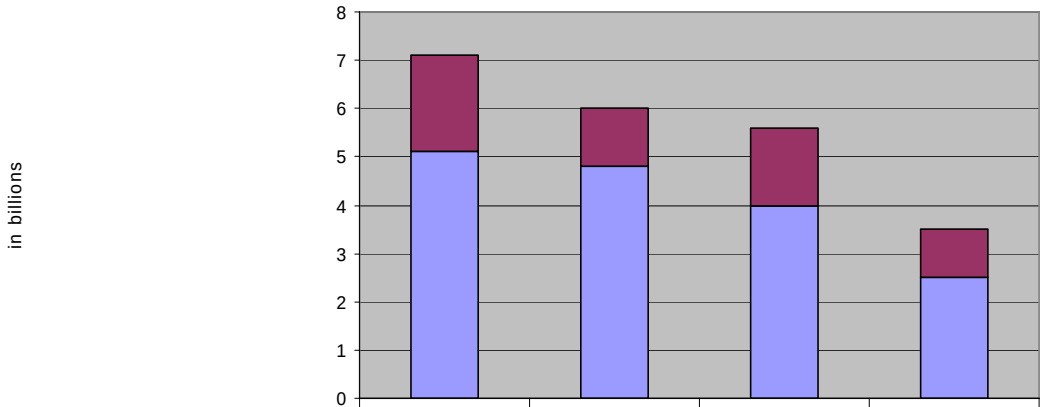
FIGURE 5.1: **National production of the poultry sector (Source FAOSTAT)**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Hen eggs (in shells)	176665	199631	220000	240000	240000	240000	240000		
Chicken meat	513312	538978	547500	561706	611195	647388	647388		
Turkey meat	11750	10000	10500	10700	11301	11745	11745		
Duck meat	39000	39000	39130	39130	39130	39130	39130		
Goose or guinea fowl meat	42000	42210	42210	42210	42210	42210	42210		

Source: FAOSTAT, July 2008

FIGURE 5.2: **Total Egg Production (2002-2005) (Source MALR)**

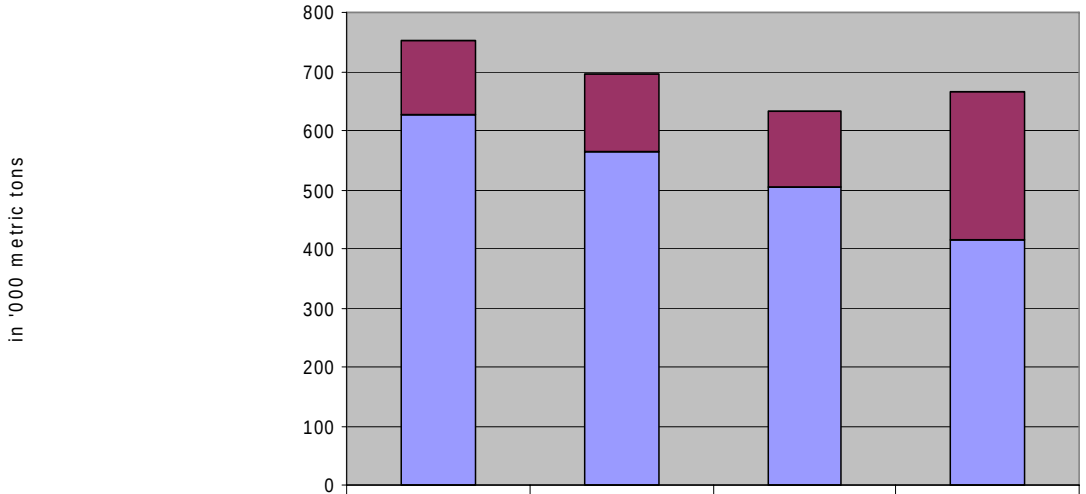


	2002	2003	2004	2005
Hen eggs (in shells) (traditional sector)	2	1,2	1,6	1
Hen eggs (in shells) (commercial sector)	5,1	4,8	4	2,5

Source: MALR, August 2006

Note: The figure of of 3.5 billion eggs produced in 2005 is subject to discussion Major poultry producers estimated this production to be around 5 billion eggs.

FIGURE 5.3: **Total Poultry meat production (2002-2005) (Source MALR)**



	2002	2003	2004	2005
Poultry meat (traditional sector)	125.6	130.7	126.4	250
Poultry meat (commercial sector)	628.1	563.6	505.6	415

Source: Calculated from data provided by the MALR, August 2006

Note: The figure of 250 000 metric tonnes of poultry meat originating from the traditional sector in 2005 is subject to discussion. Maged Ossman and Hamdey el Sawallhey (2006) estimate this production to be 105 000 metric tonnes (including all Balady poultry chicken ducks geese pigeon and rabbit).

Between 1961 and 2001, poultry meat production in Egypt had grown by 770% with an annual growth ranging from 1% percent during the 1960s to 8.7% during the 1990s. The share of chicken meat in total poultry meat production rose from 71.8 percent in 1990 to 83.4 percent in 2001.

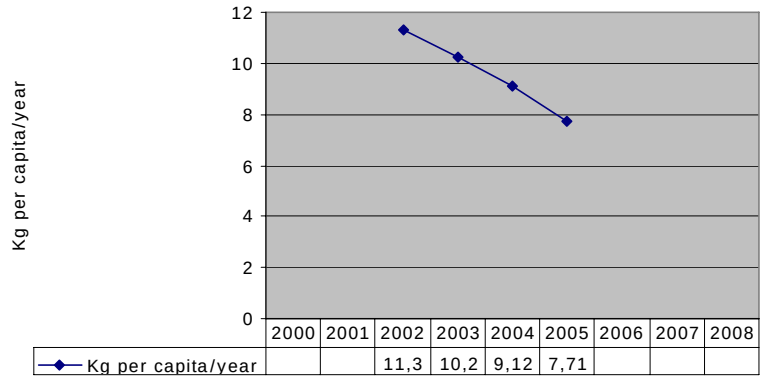
In value terms, 26% of Egypt's total livestock products came from poultry meat and egg production, and Egypt's livestock sector contributed 27% of the total domestic agricultural production in 1999 (CAPMAS, June 2000*).*

2.4 CONSUMPTION

Figure 6.a: Poultry meat (in average calories/capita/day)

Timeline information has not yet been sourced.

FIGURE 6.b: **Poultry meat (in kg/capita/year)**



Source: Consultant's estimates based on data obtained from MALR, August 2006

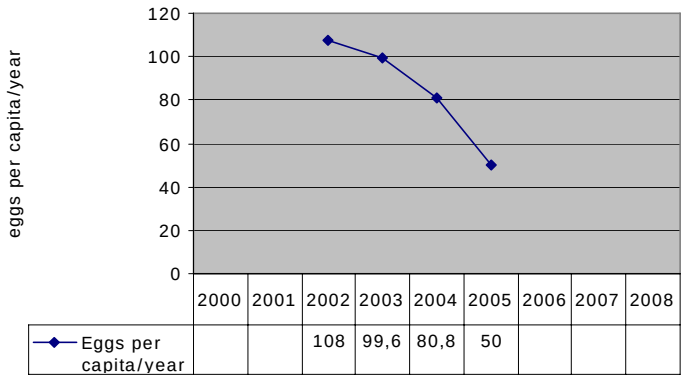
Estimates on poultry meat consumption provided in figure 6.b are based on data from MALR. They can be compared with estimates provided by Maged Ossman and Hamdey el Sawallhey (2006) who mention animal protein consumption to be 60 grams of animal protein per person per day, of which 24.7 grams are from poultry meat. According to the same document, the total poultry meat production in 2005 was 664,000 tonnes. Broiler meat production was 559,000 tonnes, representing 84% of total poultry meat production. Meat from other poultry sources (Balady chicken, ducks, geese, turkeys, pigeons and rabbit meat) was reported to be 105,000 tonnes. Since the human population in the country was approximately 70 million, the per capita annual poultry meat consumption can be calculated as approximately 9 kg in 2005.

The per capita consumption of poultry meat has fluctuated widely during the last 30 years, increasing from 3.2 kg in 1975 to 9.2 kg in 1985, and then dropping sharply after the removal of the feed subsidy in 1986. It bottomed out at 4.4 kg in the year 1991 and climbed to 5.8 kg in 1996 as income rose and demand strengthened (TAHA, 1997).

Figure 6.c: Eggs (in average calories/capita/day)

Timeline information has not yet been sourced.

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



Source: Consultant's estimates based on data obtained from MALR, August 2006

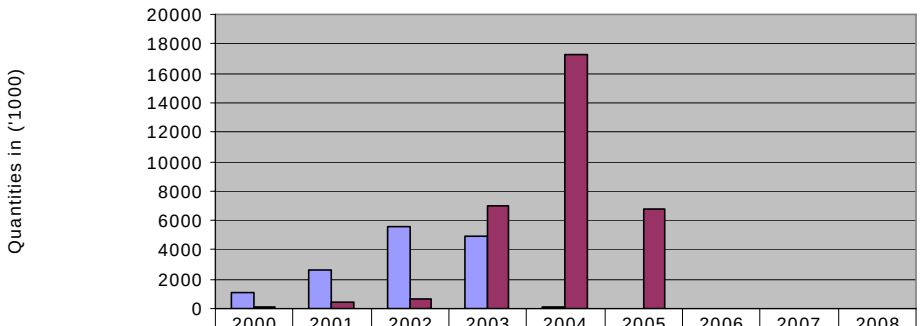
Per capita egg consumption raised from 54 eggs in 1995 to 62 eggs in 2000 (about 3 kg). More recent estimates on egg consumption provided in figure 6.d are based on data from MALR. They can be compared with estimates provided by Maged Ossman and Hamdey el Sawallhey (2006) who mention a total egg production of 5 billion eggs in 2005 (4 billion eggs produced by the commercial sector and 1 billion eggs by the rural sector). Again, considering that Egypt had a population of around 70 million, the annual per capita number of eggs consumed would thus be in that case 71.4 eggs (4.3 kg eggs) in 2005.

By including annual per capita consumption of both poultry meat (8-9kg/capita/year) and poultry egg consumption (3-4 kg/capita/year) as sources of animal protein, the importance of poultry production as the major animal protein source becomes clear. It is estimated that the average daily availability of animal protein (15.01 grams) in 2004 in Egypt can be split as follows: poultry: 5.77 grams; red meat: 4.73 grams; milk and dairy: 0.60 grams; fish and products: 3.91 grams. These figures are far below figures quoted in MAGED OSSMAN and HAMDEY EL SAWALLHEY (2006).

According to a household expenditure survey for Egypt, which shows that over 50% of per capita income is spent on food, poultry products account for nearly a third of expenditure on animal protein products and for 31% of the total food bill, with the other 69% is spent on items such as cereals, fats, oils, vegetable and fruits (AAFC, 2004).

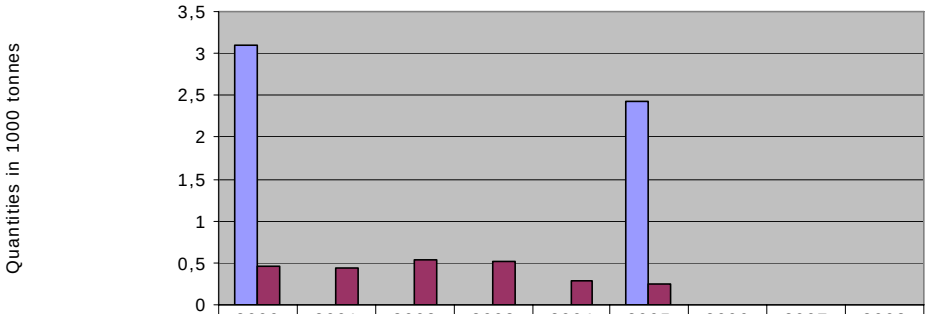
2.5 TRADE

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



Source: FAOSTAT, July 2008

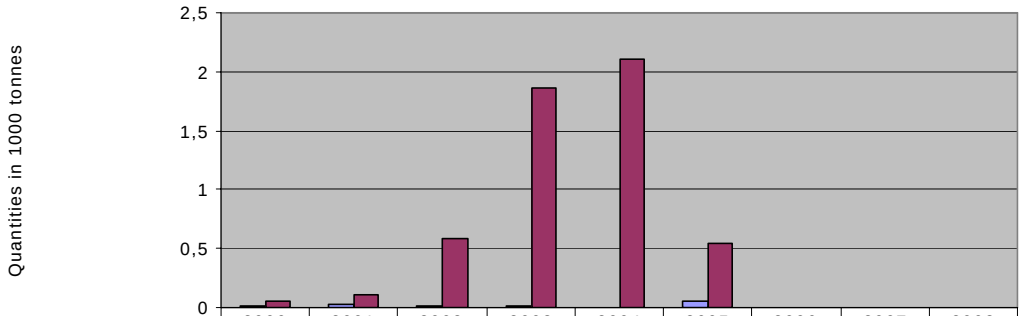
FIGURE 7.b: **Import/Export of chicken meat**



	2000	2001	2002	2003	2004	2005	2006	2007	2008
Imports Quantity	3,09					2,42			
Exports Quantity	0,46	0,44	0,54	0,52	0,28	0,25			

Source: FAOSTAT, July 2008

FIGURE 7.c: **Import/Export of hen eggs (with shells)**

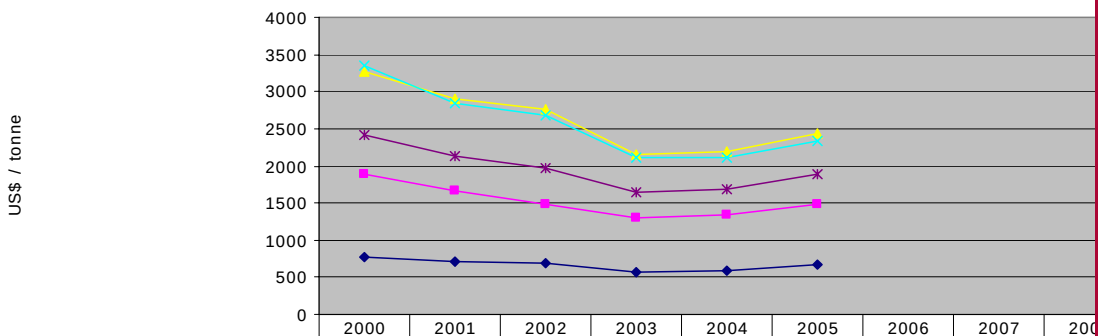


	2000	2001	2002	2003	2004	2005	2006	2007	2008
Imports Quantity	0,02	0,03	0,01	0,02		0,05			
Exports Quantity	0,06	0,11	0,59	1,86	2,1	0,55			

Source: FAOSTAT, July 2008

2.6 PRICES

FIGURE 8: **Producer price (US$/tonne)**



	2000	2001	2002	2003	2004	2005	2006	2007	200
Hen eggs (in shells)	774,18	701,23	684,5	572,56	592,39	663,65			
Chicken meat	1892,25	1658,7	1482,33	1300,66	1330,65	1483,65			
Turkey meat	3266,08	2907,12	2755,76	2162,07	2197,02	2428,78			
Duck meat	3346,73	2846,72	2677,98	2103,96	2120,76	2344,78			
Goose or guinea fowl meat	2421,62	2128,12	1963,48	1653,6	1689	1879,69			

Source: FAOSTAT, July 2008

Figure 9 Consumer price (US$/tonne)

This information has not yet been sourced

Chapter 3

Poultry production systems

TABLE 1:
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 and associates	Sellers of inputs	Sellers of inputs	Government extension service
Source of finance	Banks and own	Banks and own	Banks and private[2]	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.

[2] Money lenders, relatives, friends, etc.

In this review, Sector 3 will refer to small-scale producers; 1 or 2 sheds with approximately 5000 birds each. Sector 4 will cover rural, peri-urban, or urban backyard, balcony or roof top systems, which may be confined or free range and which are mainly scavenging with some feed supplementation. The number of birds kept in this sector is variable ranging from a few birds to up to one hundred. The main characteristic of this sector is its total dependence on family members for all production activities.

3.1 BACKGROUND INFORMATION

3.1.1 History

Egypt's modern poultry industry began in 1964 with the establishment of the National General Poultry Company (G.P.C.) which aimed to provide Egypt's fast growing human population with high quality, affordable animal protein. Another important goal for the G.P.C. was the transformation of poultry production into an industry rather than an agricultural activity, through the introduction of modern technology and skilled management.

During the sixties and early seventies, Egypt adopted a pro-socialist oriented economy, with the government controlling a vast majority of the nation's industries and wealth. In return, the Government was the main provider, ensuring that affordable services and commodities reached its people. The poultry industry was no exception. The government-owned G.P.C was the major single supplier of subsidised poultry meat and eggs, through a chain of co-operative shops, though its production did not fulfill the growing demand for poultry products. The rural small-scale family and backyard poultry production units were the actual supplier of most eggs and poultry meat (WPSA, ASSO – Egypt Branch, 1995).

The G.P.C started actual production in 1965 with a modest 10 million broiler chicks per year and grew rapidly, reaching a peak in the early eighties, producing about 40 million slaughtered broilers and around 230 million fertile broiler-hatching eggs. The fast developing private poultry sector at that time bought about 80% of fertile hatching eggs and day old chicks (DOC) produced by the G.P.C. The Government encouraged such expansion in the poultry industries through several economic policies.

The Government was responsible for the importation of corn (and other feed ingredients) and providing it at a subsidised price to the feed mills and/or poultry producers. Poultry producers received low-rate, subsidised loans from the National Agricultural and Development Bank with an extended grace period and other agreeable terms. The building of poultry farms on the scarce agricultural land was permitted and regulations which imply that a minimum of 500m distance should be kept between different poultry farms were ignored. Thus, clusters of farms were built, making the implementation of effective bio-security programs and other disease control measures almost impossible. In addition, poultry enterprises were allowed a 10-year tax exemption period followed by low taxation rates.

The Government initially protected its poultry industries by maintaining a high tariff on imported poultry meat, and this was followed by a complete ban on the importation of poultry meat in 1989. From 1986 to 1997 there was a total ban on poultry imports to encourage domestic production.This ban was replaced with an 80% tariff rate in 1997, declining further to 70% on whole birds in 1998. Import tariffs prior to HPAI were 32%. However, the protection of local production from international trade is becoming very difficult to maintain because of Egypt's obligations towards the World Trade Organisation.

The governmental incentives, together with the Government moving gradually in 1974 towards an open market economy, attracted investors into the industry. The Government encouraged more privatization in the poultry industries and as a result, more small and medium-scale farms and large poultry enterprises (e.g. El-Misria, Ismailia, El-Wadi Poultry, Cairo Poultry Company, El-shark El-awsat etc.) were born between 1977 and 1978.

Unfortunately, the Government's overprotection and subsidisation policies hid the uneconomical and inefficient performance of the poultry industry which resulted in a weak and vulnerable industry, with quite a few hidden inherited weaknesses. Even prior to the H.P.A.I crisis, these weaknesses were visible.

The most alarming sign of the poultry production industry's inefficiency is the drastic drop in poultry meat and table egg production in the period 2001-2005, i.e. before the HPAI crisis. Production of exotic broiler meat dropped by 34% (2002 -2005) while table egg production dropped by 53% (2002-2005). Native breed egg production dropped from 2 billion eggs to 1 billion in the period 2002 to 2005 i.e. a 50% drop in production.

The use of subsidised feed, loans and high investment returns allowed inefficient poultry producers with high feed conversion rates (over 1:2.7) and high mortality rates (exceeding 10 percent) to make some profit and even expand. When the feed subsidy was removed in 1988, this caused an immediate jump in the price of imported yellow corn from 180 L.E. to 500 L.E. per ton. The sharp rise in poultry feed costs caused many feed mills and poultry farms to close down (TAHA, 1997). Broiler producers had to improve their standards and those who failed to do so where gradually phased out. This, together with severe price fluctuations, can partly explain the number of non-operative poultry production units in different sectors of the industry.

In 2005, the total number of broiler (Exotic "Commercial" and improved native "Balady") sheds was reported to be 25,935 with an estimated annual production potential of 962 million broilers. The actual number of operative sheds in 2005 was 20,512 i.e. only 80% of the total number while the actual production was 415 million birds, (MALR, 2005) i.e. 43% of total potential production capacity.

The total number of commercial table egg production units in 2005 was 2,839, with an annual production potential capacity of 6.6 billion eggs. The actual operative number of units in 2005 was 2,075 (i.e. 73% of the total units), which produced 2.5 billion eggs (i.e. 38% of their total production potential). According to Soliman (1990), the utilisation rate of the existing scales of the poultry industry for broiler, table egg enterprises, hatcheries and feed processing plants was 68%, 67%, 60% and 40% respectively (late 1980's).

Excluding the numbers of non-operative units and comparing the production of operative units with their annual production potential, we notice a big gap between the two figures. This difference could be due to the reduced number of cycles per year and/or poor performance due to disease, poor feed quality, poor chick quality leading to high FCR, high mortalities, prolonged cycles over 45 days and poor uniformity etc. In Egypt, as in other countries, poor feed conversion is multi-factorial and is mainly related to the genetic potential, feed quality and feeding systems in addition to gut integrity compromised by mycotoxins, coccidiosis etc.

Following the removal of the feed subsidy in 1988 and in line with the country's continuing privatisation and trade liberalisation, the Government initiated a program to sell the publicly held poultry operations to the private sector by auction. Sales started in 1994 and within 3 years most of the G.P.C was sold, partly to poultry producers especially in the Nobareia sector of G.P.C while the El-Salam sector, which was close to a residential area, was turned into a housing project and other activities. The slowing down in the growth of the poultry industry over the past few years has resulted in a failure to sell off all the G.P.C production units and a recent advertising campaign has been launched to accomplish this goal.

3.1.2 Situation today

Poultry production systems in Egypt are quite diverse, ranging from rural very small-scale, extensive poultry production to highly intensive caged systems with over 70,000 birds per house in industrial commercial systems. In 2000, 63% of Egypt's chicken meat output was produced by the commercial sector. In contrast, traditional operations produce 22% of chicken meat, 64% of ducks, 34% of turkeys, and all geese and pigeons (TAHA, 2003).

The meat production or broiler sector of the poultry industry has a pyramid structure with grandparents at the top of the pyramid, the actual meat production birds (broilers) at the bottom and the broiler breeder in between the two. Broiler production is by far the largest element of Egypt's poultry industry.

Poultry production has been one of the fastest growing industries in Egypt. During the 1990s, poultry industries grew at around 8.7% (TAHA, 2003) with over 17 billion L.E. investments and 5 billion L.E. working capital in 2004. The poultry sector provides job opportunities for approximately 1.4 million employees when it is operational at its full potential (Maged Ossman and Hamdey el Sawallhey, 2006). Poultry sector employment represents approximately 6% of Egypt's 23.7 million labour force in 2003 and more than 15% of the agricultural work force (excluding fishery). During 2002/2004, due to the slow-

down in the poultry industry, it provided annual employment for 1.01 million employees (Maged Ossman and Hamdey el Sawallhey, 2006).

3.2 SECTOR 1: INDUSTRIAL AND INTEGRATED PRODUCTION

Recently there has been a general trend towards more vertical integration and the establishment of large scale production multi-nationals (e.g. Cairo Poultry Company). Integrated poultry companies have highly mechanized feeding, watering and environmental control systems such as heating, cooling and ventilation.

There are a few highly automated, large-scale poultry enterprises with an annual broiler production of over 25 million and currently (2006) these enterprises are planning on doubling their annual broiler production. El-Watania has merged with Al-Rajhe, which is a Saudi Arabian poultry company with an initial plan to produce in Egypt 30 to 40 million broilers per year in 2007 reaching 100 million birds in 2009.

3.2.1 Breeding stocks and hatching eggs

Broiler Grand Parents (BGP)

Broiler production in Egypt starts at the grandparent level, with five poultry companies having G.P capacity of 260,000, however the actual production as at August 2006 was around 200,000 broiler GPs.

Poultry enterprises with Grandparent Stock in Egypt:

- The Cairo Poultry Company (subdivided into three Grand Parent companies) has approximately 120,000 G.P, mainly Hubbard and Arbor Acres hybrids commercial strains.
- The El-Wadi Holding Company has 62,000 G.P. Ross strains.
- El-Watania Poultry Company has 48,000 G.P. Cobb strains.
- El-Kenana Poultry Company has 35,000 G.P. Avian 48 strains.
- The Kohia Poultry Company has 20,000 G.P. Hubbard Strain.

Layer Parents

The egg production industry in Egypt starts at the parent level. As at October 2006 there were four poultry enterprises in Egypt owning layer parent stock with an annual average capacity of around 280,000 layer parent stock, producing 21.5 million layer day old chicks (LDOC), of which around 1.5 to 2 million layers LDOC were exported per year in 2004 and 2005. The total annual commercial table egg production is close to five billion eggs.

Egypt's layer parent enterprises listed in descending order of importance are:

- El Wadi Holding with 110,000 Lohman Selected Leghorn (LSL) strain
- Abed El Salam Hegazy with 90,000 Bovans strain
- Miser For Hatching with 55,000 Hy-Line strain
- El Bana Poultry with 26,000 (changed from Hy-Line to Shavers in 2006)

The following performance estimates from the layer sector are based on information from the El Wadi Holding and Abed El Salam Hegazy Hegazi companies.

- Estimated annual production per hen housed was 270 eggs (mortalities accounted for).
- Estimated annual feed consumption per hen housed was 42 kg (mortalities accounted for).
- Estimated average number of L DOC produced per parent was 95-105.
- Estimated average commercial annual egg production was 5.1 Billion eggs in 2001-2003.

3.3 SECTORS 2 AND 3: OTHER COMMERCIAL PRODUCTION SYSTEMS

TABLE 2:
Poultry production in Egypt (2004)

Species	Number of Farms	Number of Sheds			Capacity Total /year (in 1,000)		Actual Production (in 1,000)	
		Operative	Non-Operative	Total	Broiler	Egg	Broiler	Egg
Commercial Broiler	15,668	20,615	5,298	25,913	922,924		505,499	
Commercial Layers	1,461	2,415	978	3,393	28,256	8,922,352	18,529	4,000,000
Native Broiler	2,508	3,460	429	3,889	98,343		57,020	
Balady Hatcheries	614	1,037	136	1,173	59,120		35,456	
Ducks	514			718	7,255,180		4,281,152	
Turkeys	77			150	1,014		495	
Rabbit	127			235	7,250		985	
Quail	12	45	10	55	4,366		2,772	
Broiler Breeder	365	1,948	240	2,188	9,512	1,521,910	7,966	963,150
Commercial Layer Breeder	29	82	59	141	752	150,320	317	45,307
Native propagation farms	594	1,152	122	1,274	3,867	734,730	3,117	449,920
Duck Breeder	341			576	1,008	120,942	645	68,899
Turkey Breeder	13			40	23	14,690	14	866

Source: MALR, 2005

3.3.1 Breeding stocks and hatching eggs

See chapter 3.2.1

3.3.2 Broiler meat

The vast majority of broiler production is rather small-scale production (Sector 3) with a few fully integrated poultry enterprises (Sector 1). The commercial broiler farms vary in production technology and size. The majority (>70 percent) are simple small-scale production units with one shed of 5000 bird capacity per cycle, producing 4 to 5 cycles per year, with 6 to 7 weeks per cycle and 3 to 4 weeks down time (compared to fully integrated large-scale poultry enterprises, which have 7 to 8 cycles per year). The average unit consists of 1.3 sheds, each with 5,000 birds per cycle.

TABLE 3:
Main locations for broiler production (2004)

Governorates	No. of Farms	No. of Sheds				Share in total production	
		Operative	Non- Operative	Total	Utilization (%)	Actual-1	(%)
Gharbya	1,946	2,578	264	2,842	90.7	86,045	17.0
Sharkia	2,791	2,975	1,051	4,026	73.9	78,869	15.6
Dakhlia	2,178	3,299	770	4,069	81.1	62,294	12.3
Kalyoubia	1,647	1,986	432	2,418	82.1	49,349	9.8
Behera	986	1,713	251	1,964	87.2	47,698	9.4
All (5)	9,548	12,551	2,768	15,319	81.9	324,255	64.1
Total Egypt	15,668	20,615	5,298	25,913	79.6	505,499	
(%) of Total	60.9	60.9	52.2	59.1			

Source: MALR, 2005

Characteristics of a typical small scale broiler production unit

Small-scale broiler production in Egypt (less than 15,000 broilers per cycle) accounts for approximately 74% of total broiler production. The majority of the sheds have a total area of approximately 500m³. Ventilation is natural with windows or open sided curtains. A litter system is used with manual hanging feeders and bell drinkers. Special brooding equipment involves butane heaters, pancake or simple gasoline burners and ventilation is very poor during brooding (to save on heating) causing respiratory problems and a high mortality rate. Other characteristics are:

- Shed size: 50m length x 10m width
- Capacity: 5,000 DOC
- Usual finishing time for a cycle: 40 – 45 days
- Average feed conversion rate: 1: > 2.1
- Average live weight at slaughter: 1.8 kg
- Feed consumption per bird: > 3.8 kg
- Source and price of DOC: Variable
- Source of feed: On farm mixing of feed ingredients
- Bio security levels: Fair to poor
- Vaccination programs against: AI, ND and IBD
- Main health problems: Newcastle Disease (ND), Coccidiosis, Necrotic Enteritis, Infectious Bursal Disease (IBD), Myycotoxicosis, Chronic respiratory diseases, Infectious Bronchitis and Avian Influenza (AI)
- Mortality rates: 6 – 10 %

The litter system and litter disposal

One of the most important bio-security issues in need of improvement is the current litter disposal system. The litter material is wood shavings, hay or chopped rice straw. New litter is introduced with each batch of broilers, i.e. it is not a deep litter system. Used litter is sold at the end of each production cycle and is either used as a crop fertilizer or, if it contains a fair amount of feed spills, it is used in fish farming systems as feed or as pond fertilizer (for example on tilapia farms). Using the litter in this way without any composting is a major health hazard and the development and promotion of a simple in-house cost-effective composting system is necessary.

Feed and feeding systems

Feed is formed either from ingredients mixed on the farm by the farmer using a small mechanical simple crushing and mixing unit (vertical mixing) or finished feed (mash) from a local feed mill. A recent trend in feeding has developed within the past 2-3 years towards using pelleted finished feed. This trend is having a positive effect on the poultry industry. Many production problems are related to poor quality feed (ingredients and formulations) and improvement could be brought about through a number of actions and regulations.

Most small-scale broiler producers use a manual feeding system with around 50-60 metal or plastic feeders hanging from the ceiling of the shed. Metal feeders are preferred because of their price and durability. At least 1 ton of feed out of the 18-20 tons of feed used for 5,000 broilers ends up in the litter because of old, poor quality, maladjusted feeders. The introduction of locally made mechanical chain feeders would be cost-effective and help to improve the FCR but the constraint on this is the initial capital investment at 15.000 L.E. per chain feeder.

The drinking system

Conventional old style manual or bell drinkers are used. Using a nipple drinking system would reduce wet litter and the related health problems. The constraints on this are the water quality (using well water with high mineral salt concentrations), the excessive use of poor quality water medications and the initial capital investment.

Bio-security

There are very poor bio-security practices, mainly because the farms are built in very close proximiy to each other in cluster farm formation. Other factors include multiple age groups on one farm, poor rodent and other vector controls, hazardous waste disposal, marketing practices and low bio-security awareness.

3.3.3 Hen table eggs

This information has not yet been sourced.

3.3.4 Other species

This information has not yet been sourced.

3.4 SECTOR 4: VILLAGE OR BACKYARD PRODUCTION

Up to the end of the seventies, rural poultry production was the main supplier of most of Egypt's poultry consumption. Currently it represents approximately 30% of total poultry production

3.4.1 Chickens

Rural poultry population

Exact numbers relating to rural poultry population, backyard family production and rooftop systems are not known. An attempt was made to estimate them through the number of households, the number of Balady hatcheries, the number of native breed farms (Ekthar) and the number of Balady rearing farms which usually sell their chicks at 3-6 weeks of age to rural households.

Backyard poultry are either home produced by broody poultry or obtained from the local market from peddlers. Almost all the production capacity of both Balady hatcheries (120 million DOC) and Balady rearing farms (35 million DOC) is directed towards the rural backyard poultry production systems. In addition there are some modern hatcheries that are occasionally used in Balady chick production.

Balady propagation farms produce eggs which can either be used as table or hatching eggs depending on the market situation. They are the equivalent of commercial breeder and/or layer farms (for both native broilers and layers). Balady propagation farms (Ekthar) usually use improved native breeds and on-farm stock selection for the next generation. Some use the exotic breed of Sasso for crossbreeding and artificial insemination with heavy breeds such as Hubbard males. Only a very few farms use pure native breeds and each producer has his own secret breeding program.

The production of Balady propagation farms (Ekthar) increased from 450 million eggs in 2004 to 475 million eggs in 2005. Hence, the estimated annual flow numbers of the rural poultry population coming from external sources is about 150 million plus an unknown number produced by commercial hatcheries (estimated to be 100 million) in addition to poultry produced by broody poultry and the birds remaining from the previous year.

The number of rural households is 8.1 million (CAPMAS, 2006) and the estimated number of DOC produced from rural chicken is more than 250 million (with 120 million coming from Balady hatcheries, 35 million coming from Balady rearing farms and 100 million from commercial hatcheries). Considering the high mortality rate in rural poultry (> 30%) the rural poultry population and its annual flow from external sources would be approximately 200-250 million birds. In addition, when the number of chicks produced by indigenous broody hens and the number of layers that remain in the household from the previous year are taken into account, together with other species such as ducks, turkey, geese and pigeons, the total rural poultry population would have been over 350 million birds prior to the HPAI crisis.

Poultry species, breeds maintained and flock size

Birds of varying ages and different species are kept, mainly chickens, followed by ducks, geese, pigeon and turkeys. No specific breed can be pinpointed in the rural poultry sector as it depends mainly on the source of DOC and local non-specified crosses between endogenous native breeds such as Fayoumi, Balady and Dandarawy or improved native breeds. The size of the flocks is quite variable. Depending on family wealth and the main farming objective (home consumption, income or both), flock size can range from 10-20 birds up to a few hundred.

Flock Housing

Traditionally very primitive coops were built using locally available material such as mud bricks and palm wood reed. They have very small windows, no artificial light and are only used as a night shelter. During the day the birds were allowed to roam freely in and out of human dwellings and scavenge for feed which would occasionally be supplemented with a few grains or household kitchen leftovers.

Recent trends in backyard systems in response to HPAI

True free-range scavenging is becoming very rare with poultry becoming more and more confined in either backyards or rooftops, the exception being aquatic birds which are still mainly kept on a free-range extensive production system. The governmental imposed regulations during the peak of the HPAI crisis which resulted in the destruction of many poultry coops, and the attempted banning of free-range poultry production systems. Most family poultry were hidden and confined in an enclosed area (either the backyard or rooftops)[3].

Feeding of rural poultry

One of the main constraints of the rural poultry production sector in reaching its full production potential is the availability of feed ingredients and feed formulations. Traditionally feeding depended on birds scavenging coupled with a little grain and supplementation with other locally available feed resources and kitchen waste which does not fulfill the actual nutritional requirements of the bird. This in part explains the low productivity of rural poultry under extensive farming systems as compared with their productivity under intensive systems. As rural poultry are currently becoming more and more confined, the need is increasing for extra feed supplementation beyond household kitchen and / or crop and field leftovers and by-products.

Households have responded either by reducing the flock size to match the available feed resources or by using supplementary small amounts of mixed poultry feed. Unfortunately most of this feed is of very low quality and overpriced and represents great health risks, as it is often remaining feed collected from broiler farms at the end of their production cycle. The remaining feed, feeders and hoppers are collected and sold to traders who in turn sell it to the rural family poultry producer.

[3] Because of the heavy-handed approach, poultry were kept in bedrooms resulting in serious consequences. As birds were hidden in bedrooms this resulted in closer contact between human and birds leading to human infections and fatalities from HPAI. Confinement was the result of fear rather then the appreciation of the merits and benefits of confinement.

Low cost feed formulation using the proper balance between the locally available feed resources and introduced feed ingredients such as corn, soya, vitamins and mineral premixes would have a very positive effect on improving productivity. The old concept of low-input, low-output is no longer valid under these new confinement systems.

Low quality, over-priced feed will erode any profit margins in production and if allowed to continue any longer will eventually push most households out of production.

Importance of egg production in the rural poultry sector

On a national level, the contribution of the rural sector to total national poultry production is mainly in table egg production. The low nutritional requirements, low feed conversion, disease resistance and higher selling price indicate the importance of egg production as being the focus in developing rural poultry production systems.

Egg production and marketing has been practised for centuries in Egyptian villages. The gap in the egg production efficiency between native breeds and exotic breeds is not as wide as it is for meat production and fulfilling the nutritional requirement for layers with 14% protein is much easier than the 18% protein required for meat production. Egg production provides a steady, evenly distributed source of income. Marketing and egg transportation is easier and constitutes less of a health hazard, and broody hens can be a source of new poultry additions to the family flock.

The rural poultry sector – with native breeds at the core – was for many years the main supplier of table eggs and poultry meat as shown in Table 7. Up until the mid seventies, most poultry production in Egypt depended on the rural sector. Rural production dropped during the eighties and early nineties especially in the meat production segment and the commercial poultry sector – using exotic imported breeds – became the main producer of poultry. The share of the rural poultry sector in total national production dropped to its lowest level in the mid eighties. Starting with the nineties, the native breeds began regaining some of their lost market share. According to the census 1995 (C.A.P.M.A.S,1996), the rural poultry population increased from 37.2 million birds in 1990 up to 81.5 million in 1995 as the improvement in native crossbreeds and marketing advantages encouraged producers (World Poultry Science Association ASSO – Egypt Branch, 1995). Rural poultry production prior to the HPAI crisis was estimated to have around 10% of the market share in the meat production sector and 30 percent of the egg market.

The cultural and socio-economic role of rural poultry production

Rural poultry production can play a vital role in gender equality, food security, animal protein availability and income and employment generation. The rural poultry sector is important for Egypt's development overall and specifically for poor landless rural households.

Rural poultry production can be one of the tools to combat food insecurity and a first step on the path leading people out of poverty JENSEN and DOLBERG (2003). It is argued that it is inadequate to describe poverty solely in monetary terms. The livelihoods of poor people are better characterized by isolation, powerlessness, vulnerability and physical weakness and an improvement on any one of these parameters may help trigger a spiral of positive events that can lead people out of poverty DOLBERG (2003).

Smallholder poultry production will not generate large amounts of income, but it represents a known skill to most poor women and it can assist them in moving into a positive spiral of events that may lead them on to a path out of poverty JENSEN and DOLBERG (2003). There may be several explanations, but an important one is that participation in a poultry project reverts the trend towards social exclusion that is often associated with poverty and social exclusion may lead people into a deprivation trap. Powerlessness, vulnerability and physical weaknesses, as explained by CHAMBERS (1983), lead to what is termed integrated rural poverty for those that are caught in the trap. The benefits of backyard poultry production activities are not only in the income they generate or limited to the household food security and improved nutrition.

More importantly, they provide the families an opportunity to get involved in production and develop skills. The contribution is much less to food production per se in the household and more to the food security that results when women and their families develop skills and confidence in undertaking production. Participation in poultry production brings women out of their isolation, bolsters their self-confidence and leads them on to other activities. Native chickens under a scavenging system are the most appropriate income generating activity for the rural landless women. It is low input, highly productive and can be incorporated into

household work. Poultry can therefore be used to provide independent income for women, which is a very important aspect of food security (PARIS et al., 2001). In most cases the income generated from rural poultry is directed towards other food items for her family.

Poultry production can provide meat and eggs for the family, be a source for a small and fairly regular cash flow and avoid waste by using kitchen left–overs and broken seeds as feed. Poultry manure can be used as a fertilizer for crop production and poultry also help in pest control. Importantly, unlike in the case of larger livestock, poultry production is not restricted by land ownership. This is important as only 24.5 percent of rural households own land, which is very unequally distributed. Poultry is also important for festivals and traditional ceremonies and for other socio-economic reasons, as shown below:

- Keeping poultry is a sign of wealth and big diverse family flocks are prestigious.
- Poultry, especially duck and geese, are consumed as a sign of festivity on certain important Moslem religious occasions, half of Shaában month and the start of the Islamic year (El-hejra festival).
- Poultry consumption increases dramatically during the holy month of Ramadan.
- Honoured guests are served with poultry meat, which is preferably slaughtered in their presence since it is no longer traditional to slaughter cattle, sheep or goats for guests and during traditional ceremonies.
- Turkeys are a regular item at wedding feasts and important banquets.
- Newlyweds in rural communities are gifted with poultry eggs and meat.
- After parturition, it is believed that the new mother has to eat one chicken each day, until her child is 40 days old, and it is the duty of the mother's family to provide these chickens.
- Chickens and eggs are used as gifts and as a return for favours in rural communities.
- Poultry are also used in mystic rituals (to satisfy the demons that possess a person) usually an unmarried young girls or woman, divorcé in rural communities.

The importance of poultry in income generation, especially for the poor and landless, is evident when studying the household income structure by income quintile in Egypt (CROPPENSTEDT, 2006). For the poorest group (bottom quintile 1st), livestock income is more important than crop income, accounting for 17.3% of the total income of households. The most important types of livestock for the bottom quintile are poultry. Poultry account for 72% of total livestock income, with chicken alone accounting for 61% of livestock income. Chicken also account for the bulk of livestock income for higher quintiles (falling to 44% for the fifth quintile) (CROPPENSTEDT, 2006). The potential of rural poultry production to alleviate poverty could be highly increased if the constraints to production are properly targeted.

3.4.2 Other species

This information has not yet been sourced.

3.4.3 Case study one: The Fayoumi breed

The Fayoumi is known worldwide and is exported to many African and Asian countries where it is used in rural and backyard family poultry production systems. A poultry research unit was established in Fayoum City in 1946 to purify and select the Fayoumi breed. The first stock used originated from a Fayoumi flock found in the poultry research unit in Dokki. The first pure pedigree Fayoumi flock was established in 1951 and has been closed ever since. The second pure Fayoumi flock was formed through buying birds that fulfilled the description of the pure Fayoumi from local villages and buying day old chicks (DOC) from Balady hatcheries found in Fayoum City.

TABLE 4:
Characteristics of the Fayoumi breed

Breed	Egyptian
Shape of the body	Round with a long neck
Mature body weight	Cock - 2.25 kg Hen - 1.70 kg
Colour	Grey in the body with yellow stripes and white in the neck region
Comb	Little single
Plumage	Short, tight and glossy
Egg Weight	Average weight is 43 gm
Colour in Shell	White, Brown or tinted
Egg Production	Average percentage of egg production is 55% or 200 eggs in a one-year laying period, under full feed intensive housing.

Source: Guide for Training of Trainers, 4th edition, Prepared by the Training Resources Person Participatory Livestock Development Project, Bangladesh; June 2000; Ref.No.104. Bangladesh. 805-8), cited in Rashed Hasnath (2002)

Other characteristics include:

- High fertility and hatchability
- Adapted to restricted feeding
- High egg quality: low cholesterol; strong eggshell
- More resistant to Rous sarcoma virus and leucosis especially the neural type
- Highly adaptable to different environmental conditions and has been introduced to USA, UK, India, Pakistan, Iraq, Vietnam, Bangladesh

It is viable to restrict the feeding of Fayoumi laying hens in intensive village conditions since it will reduce production costs. Fayoumi laying hens can be restricted to 80 percent of ad libitum feeding without adverse effect on performance. Hollands and Gowe (1965) reported that restricted feeding resulted in increased egg production, improved feed efficiency and increased monetary returns. Aboul-Soud and Khan (1966) concluded that feed conversion and egg production were superior for restricted feeding. Percentage of fertility and hatchability significantly improved for the restricted feeding group of Fayoumi birds. Kicka et al. (1979) reported that the yearly egg production of Fayoumi and White Balady hens was 165 and 174 eggs respectively. The corresponding egg weights were 49 g and 47 g. Rahnan et al (1997) observed the highest productivity, lowest mortalities and profitability in the crosses of Fayoumi with the Rhode Island Red.

Local breeds are more suited for egg production than they are for meat production. Improved Fayoumi under proper management and feeding conditions produce approximately 200 eggs per year. Pure Fayoumi egg production is about 150 eggs per year and the average egg weight is 43 grams. For the Dandarawi the egg production is 140 eggs and the average egg weight is 45 grams. Balady annual egg production is 151 eggs with an average weight of 40 grams (Sonaiya and Swan, 2004)[4]. El-Hossari (1970) was able to establish 2 lines from Fayoumi through selection, one strain was for egg production (PP) while the other strain was for fast growth (GG), the original flock was designated (RR). A third pure pedigree flock was established in the Al Azzab integrated poultry project at Fayoum Governorate.

TABLE 5:
Breed performance of different Fayoumi strains

	Original RR	Egg line PP	Growth Line GG
Body weight at 8 weeks (grams)			
- Males	361	579	657
- Female	329	444	504
Body weight at 12 months (grams)	1,120	1,456	1,671
Egg weight at 12 m months (grams)	45	46	47
Age at Sexual Maturity	188	172	203
Egg Production at 72 weeks	134	216	183
Fertility percentage	87	95	96
Hatchability percentage	77	89	88

Source: El-hossari (1970)

Feed requirements

The recommended formulation of a layer ration starting at 41 weeks (according to El Azzab publication) should contain 13 percent total protein, provided that Lysine, Methonine and Cystine are 0.6%, 0.2% and 0.42% respectively and the energy content is 2,600 Kcal (World Poultry Science Association ASSO – Egypt Branch, 1995).

TABLE 6:
Protein and energy-feeding requirements for Fayoumi egg line breed

	Protein %	Kcal/Kg feed
Starter 0-8 weeks	18	2,800
Grower period 9-20 weeks	14	2,800
Production period 21-72 weeks	15	2,650-2,700

Their protein requirements represent 90%, 93.3%, and 83.3% of the commercial exotic bird's protein requirements in the 3 age groups respectively.

The above table is an indication that egg production using local improved endogenous breeds might be more cost-effective and profitable than using improved exotic egg producing hybrids. Soliman (1990) came to the same conclusion in comparing the net economic return for feed used for Dokki 4 (a local improved strain) with that of an improved exotic egg production hybrid. Since then, commercial exotic layers have improved, reaching 280-300 eggs/bird and local breeds have improved, reaching 220 eggs under commercial intensive conditions (personal data). The production cost and selling price has also changed hence there is the need for updating such an important study.

TABLE 7:
Comparison of egg production and feed consumption of Dokki4 and foreign strains (A and B)

Strain	Mortality Rate (%)	Eggs produced per hen housed per month	Feed consumption per egg (g)
Dokki4	31.3	11.3	317.7
A	33.3	8.65	368
B	28.3	15.86	302

Source: Ibrahim Soliman (1990

The above table shows that the monthly egg production for the improved native Dokki 4 is more than the exotic strain A and that the feed consumed by the improved native breed Dokki 4 to produce 1 egg is less than that consumed by the exotic strain A.

3.4.4 Case study two: Thengamara Mohila Sabuj Sangha (TMSS) and HPAI

Many small-scale producers depend heavily on a middleman operation to get supplies of most required inputs such as day old chicks, feed (ready-made or ingredients), disinfectants, pharmaceuticals and feed additives (anticoccidials, antimycotoxins, growth promoters etc). The producer usually covers 20-30 percent of the credit value in cash down payment up front and the rest, or even the whole amount, is covered and guaranteed by an official legal document such as a bank cheque or alternatively an I.O.U. The trader or the intermediary wants a guarantee that even if the small-scale producer loses on his crop, the intermediary will not lose out. At the end of the production cycle, after the producer sells his broilers, he settles his account and puts a down payment on the next cycle.

The legal document usually remains in the hands of the trader for as long as the poultry producer remains in business. Banks do not usually give loans or credit facilities to small poultry producers except if the loan is completely covered by strong collaterals. The disadvantage of this credit system outweighs its advantages to both parties and especially so for the small producers for the following reasons:

Most inputs are overpriced by a 10-25% profit margin for the trader and the quality of inputs is usually poor as the supplier sources inputs that bring the highest profit margins. The trader usually has the upper hand in dictating all the terms. A number of small-scale producers end up either bankrupt, in jail or forced to sell their farms to the supplier. The small-scale producer might run into two or more concessive non-successful crops due to production problems related either to the general performance or due to marketing related prices or both. A number of the so-called traders or intermediaries have evolved over time and have become actual producers of DOC and or feed. A few are almost fully integrated with their own broiler breeder farms, hatcheries, broiler farms, feed manufacture and slaughterhouses (either hired or self-owned). Yet they still depend on the small broiler producer as their main customer for their DOC

The described credit bases are still operational and it is worth noting that they increased the up-front down payment to nearly 30-50% depending on the risk assessment in response to the HPAI crisis.

Moving from a live market system to slaughtered birds would add extra time to the money circulation. Frozen birds are usually sold on a credit basis, which might extend for 60 days while the live bird market system is a cash and carry system where the price of the birds is paid before they leave the farm and the main supplier or office gets the money the next morning or soon after.

In a slaughtered and processed bird market the producer will first have to secure the cost of transportation of the birds to the slaughter houses as well as costs related to slaughter, processing and cold storage and marketing and distribution costs. The money circulation time will increase 45 to 90 days. The small-scale producer might not be able to bear the extra cost or the slow money circulation in a transitional period.

3.5 POULTRY VALUE CHAIN ANALYSIS

3.5.1 Day-old chicks

This information has not yet been sourced.

3.5.2 Chicken meat

When birds reach an acceptable marketing weight, the producer contacts or visits what is known as El-Boursa (a central poultry price broker). The word Boursa in Arabic means 'the stock exchange' and the Boursa is a recent development in the marketing structure which was established by the private sector around 5 years ago with the aim of controlling prices. However, market forces of supply and demand will always have the upper hand in dictating price. Birds can be sold before or after their predicted marketing age depending on the price and / or health condition of the birds. The producer informs the person in charge at the Boursa of the farm's location, number of birds, average live weight, age etc and he is then informed of the current price. The producer may make direct contact with a broker or trader and settle the price which might differ from that declared by the Boursa. Loading of birds usually starts at night when the trader's crew arrives on the farm. The exotic broilers are loaded in plastic crates while wood and palm-reed crates are used for other species. Most small-scale farmers depend on a crew of hired night labourers in catching the birds.

During loading, the trader crew grades the birds into four categoriesThis grading system was developed to overcome poor uniformity:

- Heavy birds, over 2kg live weight, used in further processing and butchering into parts
- Small-medium weight, 1.2/1.9 kg, for the small retail live bird shops

- Very small > 1kg and < 1.25 kg, chicken grillers sold as a part of a whole meal (grilled chicken, bread, rice and salad at a fixed price to their customers)
- Birds less than 1kg in weight are sold at half to two thirds of the original price

Several transactions take place during the marketing operation of poultry meat, including:

- From farm to wholesaler, directly or through a broker
- From wholesaler or trader to the consumer, through a small retailer
- To brokers/traders, to slaughterhouses, cold store, to supermarkets and finally to the consumer in the form of frozen or chilled complete chicken or chicken parts
- From farmer to trader, to slaughterhouse, to further processing, yielding half-cooked and ready-to-eat products directed to niche markets at large supermarket chains in upper middle class residential areas

Moving from a live bird market to a chilled/frozen bird requires very high uniformity in weight, size and age, as both small and large birds will be rejected at the slaughter house. Marketing of slaughtered, frozen or chilled whole birds or parts is mainly limited to the integrated poultry enterprises which have their own slaughterhouse, large-scale producers and poultry traders which have supply contracts with hotels, hospitals or the military etc. Further processing is also limited; only 20% of broiler production reaches the consumer either frozen or chilled. Less than 5% is further processed and around 75% is marketed through live bird marketing channels. The quality of the frozen chicken produced by a number of abattoirs is not up to standard recommendations. Marketing insufficiencies impact on prices causing severe fluctuations.

3.5.3 Table eggs

Women in a household with a small flock collect the eggs produced over 7 - 10 days and sell them to a trader who goes to all the houses in that village and surrounding villages. The trader then transports the eggs to a nearby city where they are sold to small retail shops or grocers. Eggs are usually packed in a traditional wood and palm reed crates between several layers of rice straw or wood shavings. Eggs may also be sold at the local traditional market Souk by the producer together with other products, which may be from more than one household. A Souk is usually held weekly and is located in the centre of several villages or close to a city. Most souks sell all farm products while few are specialized in certain products such as livestock, dates, water melons etc and in such souks brokers have a central role in setting the price and other trade transactions. Eggs and live birds are collected from the Souk and transported to bigger city markets.

The Souk is vital to rural communities and is the most important and most effective marketing channel but at the same time it could be a source of disease transmission and spread, with live birds being moved from one area to another. This could partly be reduced by education and creating simple bio-security procedures at the household and Souk level that only allows apparently healthy birds into the Souk.

3.5.3 Other species

This information has not yet been sourced

Chapter 4

Trade, marketing and markets

4.1 DOMESTIC MARKET

Live Bird Markets (L.B.M.)

Poultry meat production depends heavily on live bird markets because of the lack of marketing infrastructure and various consumer factors. Over 70% of broilers are sold at small retail poultry shops. There are around 15, 892 such retail shops in Egypt which sell either live or freshly slaughtered birds to the consumer. In addition, 4,305 small slaughtering and de-feathering points exist that sell freshly slaughtered and chilled birds and bird parts. Most of these slaughtering points are within residential areas.

Both the small retail poultry shops and the primitive slaughter points practice minimal, if any, food safety standards and are a potential source for many food-borne disease outbreaks.

Table 13: Distribution of markets

This information has not yet been sourced.

Characteristics of a typical live bird small retail shop operation

1. Birds are usually kept in metal cages in the front of the shop and slaughtered in the back end of the shop. There is no clear separation between the so-called clean and dirty areas in the shop.
2. The customer after inspecting the birds chooses the bird or birds he/she wants to buy.
3. The bird/birds are weighed, priced and slaughtered. The customer may also purchase the poultry to take home alive. Customers especially in very poor residential areas prefer slaughtering at home and dumping the feathers and other waste in front of their house as a sign of wealth.
4. If the bird is slaughtered in the shop, it is slaughtered and then thrown into a metal barrel or a plastic container where throughout the day other birds have been bled.
5. The bird is left to bleed for a few minutes.
6. The bird is thrown into a scalding tank containing hot water. The tank has no thermostatic temperature regulation or renewable hot water overflow; water is added as required and kept hot using a gas burner. The scalding tank is usually an old metal half-barrel or similar container. Birds are kept in the scalding tank for 1-3 minutes depending on size, species and water temperature.
7. The next stage is de-feathering (picking) which is usually done manually in the very small retail shops in poor residential areas. De-feathering may be done mechanically using pickers having short firm rubber fingers of different size and length.
8. Following de-feathering, the bird is thrown in a washer tank followed by a quick rinse under running tap water (the water is not chilled).
9. Evisceration is performed in the same area which can lead to contamination. A quick carcass wash follows evisceration.
10. Finally, the bird is put in a plastic bag with its giblets and occasionally the feet are included.
11. At the end of the day, a truck passes by the small shops and slaughter points and collects the solid waste and blood. The waste is then transported and sold to rendering plants where it is cooked and the product after processing is used in poultry feed manufacture.

The health hazards associated with these live bird-marketing systems are obvious and since they will exist for some time, finding practical ways of improving hygiene and food safety in these establishments is essential.

Enforcing regulations, or an attempt to ban live birds being sold at the Souk, will never work against a traditional marketing system that has existed since time immemorial. Forcing a ban on live bird markets will never be complete before a balance is reached between the production of live birds and the number of abattoirs and cold storage capacity no matter what rules or regulations are imposed. Changing consumer habits needs active promotion and education. An immediate complete ban, if imposed prior to addressing the relevant issues only lead to the collapse of the poultry industries with all the small and medium-scale producers (representing 70 percent of production) being pushed out. The poultry industries will eventually be controlled through a very small number of large fully vertically integrated poultry enterprises.

4.2 IMPORT

Importation of feed ingredients

Egypt is a major agricultural importer of poultry feed ingredients such as yellow corn and soybean. However, in the absence of efficient feed quality control systems, feed storage facilities can be poor allowing mycotoxin production, feed deterioration and vitamin loss. In addition, the importation of low quality corn (grade C and D) and testing only for aflatoxin has a negative effect.

Egypt used to import large quantities of animal protein concentrates such as meat and bone meal, fish meal and feather meal, methonine and lysine and other feed components such as di-calcium phosphate and gluten feed. Currently, with the increase in public awareness and consumer pressure, most producers have excluded animal protein sources from their poultry rations. The Government also imposed a ban on meat and bone meal imports.

Other poultry related imports

Feed additives and growth promoters, vitamins, antibiotics, anticoccidials and antimycotoxins are mostly imported and some are produced locally. With very few exceptions, all biologicals used – such as vaccines, diagnostic kits and reagents – are imported.

Importation of table eggs

During the early 1980s, Egypt imported table eggs, which accounted for 11% of the total domestic supply at the peak of egg importation; 12,000 tons in 1982. The Government banned table egg importation in 1989.

Fertile Hatching Eggs and DOC

Up to the mid eighties, Egypt depended heavily on the importation of fertile hatching eggs and day old chicks (45% of the broiler sector and 75% of layers, Ibrahim Soliman, 1990). With the establishment of the grandparent sector in the broiler industries, the importation of DOC broiler breeder chicks was gradually phased out during the nineties with a complete ban imposed in 1997. Egypt has no layer grandparents and depends totally on the importation of layer breeders. Egypt also imports around 250,000 Grand Parent day old chicks annually, which fulfills the country's needs with an exportable surplus.

Importation ban prior to HPAI

Prior to the A.I. crisis the Government imposed a three month ban on all poultry imports including Grand Parent chicks. The ban was further extended for 1 month and then lifted in March 2006.

Other poultry imports

A special breed such as the Sasso from France is imported for crossing with Balady. Turkey and ducks DOC, parents and broilers and fertile ostrich eggs and chicks are also imported.

Importation of poultry meat

During the 1980's, Egypt imported between 40,000 and 130,000 tons of poultry meat annually (whole birds and parts). The peak was reached in 1984 and accounted for 34% of the country's total poultry meat consumption. After the 1988 importation ban, shipments gradually declined to only 5,000 tons by 1996 mostly serving the institutional markets (e.g. hotels and the military) (TAHA, 1997).

Importation tariffs

Egypt continued to protect its poultry industry by using a tariff of approximately 80% (1986/1997) on imported poultry meat, which was reduced in 2005 to 32 percent. Egypt is committed under the country's acceptance into the WTO to remove all protection very soon. Poultry protection is therefore becoming more difficult to implement. When importation resumes at a reduced tariff, the small-scale poultry producer and non-integrated poultry enterprises will face stiff international competition. Because of the current economic inefficiency in the small and medium scale production systems, the cost of production in Egypt is relatively high resulting from high mortality and poor feed conversation rates.

The 2006 world price for whole birds is in the range of 1,400 to 1,550 US $ per ton of frozen imported whole chicken, which is above the average production costs for Egypt's large-scale poultry production enterprises. As these enterprises have the ability to sell chilled birds, they can easily survive competition, provided no chicken parts or low quality products are imported and only high quality products are allowed in. Small and medium scale inefficient producers with FCR > 2:1 and 5 cycles per year will not survive.

4.3 EXPORT

Egypt started exporting in response to market crises and not as a result of reaching self-sufficiency in poultry production. The per capita poultry consumption in Egypt is still below world average for middle-income countries (TAHA, 2003).

During 2005, Egypt's export of poultry products into 32 countries valued approximately 10 million US$; hatching eggs (6.8 million US$), poultry meat (3.3 million US$) and table eggs (282.3 thousand US$) (Maged Ossman and Hamdey el Sawallhey, 2006).

See chapter 2.5 for figures on trade.

The export market of local poultry genetic resources

Exportation of the local indigenous breeds of chicken such as Fayoumi and Balady to a number of African and Asian countries continues. The exported birds are used in the rural and backyard production systems of the country concerned because they are well adapted to low nutritional standards and harsh environmental conditions and maintain reasonable productivity.

4.4 SLAUGHTERING FACILITIES

The total number of broilers slaughtered during 2004 in governmentally-owned slaughter-houses was 40.8 million birds and the total poultry numbers (i.e. chicken, duck, turkey, pigeon, quill, and ostrich) was 41.4 million birds, i.e. broilers represented over 98.5% of the total bird population slaughtered.

The total number of slaughterhouses in Egypt in March 2006 was reported to be 184 abattoirs with a total annual slaughter capacity of 186,480 million broilers (Maged Ossman & Hamdey el Sawallhey, 2006) i.e. 36% of the total broiler production in that year and only 19.3% of the total annual production potential of the existing broiler production units in 2005.

Building the required number of abattoirs to accommodate the production capacity of 2005 (505 million broilers) is estimated to cost around 7 billion L.E (Maged Ossman & Hamdey el Sawallhey, 2006) and an investment of about 12 billion L.E would be required to accommodate the total production potential of the broiler sector (1.2 billion birds). It should be recommended that some of these new abattoirs be adapted to slaughter local native Balady strains as well as spent layers and breeders.

Construction of new slaughterhouses is estimated to take at least 3 to 5 years and this raises the question of what the national plans are for this transitional period in terms of live bird markets, small-scale producers, backyard and roof tops. No matter what rules and regulations are brought into force, it will not be possible to force a ban on live bird markets without first changing consumer habits and reaching a balance between the production of live birds and slaughterhouses/cold storage capacity. Changing consumer behaviour requires active promotion and education. The imposition of slaughterhouses by force will only lead to the collapse of the poultry industries with all the small and medium scale producers (i.e. 74% of producers) being pushed out. The poultry industries will eventually be controlled through a very small number of large, fully vertically integrated poultry enterprises. As at 2006, with the closure of the live bird markets, most integrated production facilities and others are building new slaughterhouses and/or aim to double the capacity of the existing ones. A workable solution for the live bird markets during this transitional period must be found.

Poor quality products and lack of further processing denies the industry extra profit and keeps it unable to compete with incoming processed poultry and ready-to-eat products which may be cheaper and of a better quality than local products. The poor quality of slaughtered poultry products also increases the chance of transmitting zoonotic food borne disease agents (e.g. Campylobacter, Listeriosis and Salmonella) which will lead to a loss of public confidence and marketing disasters. Improving the quality of slaughtered poultry will improve its shelf life, enabling the industry to maintain an advantage over imported frozen poultry by selling chilled birds.

The insufficient capacity of Egypt's slaughterhouses together with the poor geographical distribution of the existing ones were highlighted during the 2006 HPAI crisis with the Government failing to impose a closure of all live bird markets.

4.5 POULTRY FEEDS

Egypt is a net importer of poultry feed ingredients because of its limited arable land and water resources. Maize and soybean represent the bulk (90%) of poultry feed ingredients and in 2003, poultry feed ingredients represented the major share of agriculture imports (maize 19% and soybean cake 7.3%, FAO, 2005). There is a move away from using animal protein sources, especially meat and bone meal, although a few producers still use fishmeal.

One of the principal constraints to the development of the poultry industry in Egypt relates to feed resources and aspects of feed which contribute to poor Feed Conversion Ratio (FCR).

Poultry have the ability to convert vegetable protein and other food sources into a desirable form of animal protein extremely efficiently. An animal or bird with a low FCR is economically more efficient than one with a high FCR and hence preferred. Poultry have a very low FCR in comparison with other farm animals. (1:2 poultry against 1:7 for cattle). Poultry also have the advantage of a comparatively short production cycle of 5-6 weeks compared to months for ruminants. Theoretically, the progeny from one poultry grandparent production totals over ten tons of live weight meat. Most consumers in Egypt favour poultry meat because of its relatively low price in comparison with red meat and for its superior nutritional and health qualities.

The exact FCR on a national level is not known but can be estimated for each segment of the industry as follow:

- Pure Native Breeds > 5 kg of feed for every kg of live weight 5: 1
- Improved Native 2.7: 1
- Small-scale broiler producer 2.2: 1
- Modern fully-integrated: 1.65: 1

FCR depends on many factors, of which the genetic make up of the bird, feed quality and the gastro- intestinal tract integrity (G.I.T.) are the most important. More investigation on feed resources and feeding are required as this is one of the principal constraints to the development of the poultry industry in Egypt. Low feed efficiency and poor feed quality add to the inflation of production costs, with the burdens being transferred to the consumer as feed represent over 70 percent of the production cost.

Chapter 5

Breeds

The commercial sector is mainly dependent on imported hybrids such as Arbor Acres, Hubbard, Cobb, Avian, and Ross in the broiler sector and Bovins, L.S.L. Hysex in the layer commercial sector. Small-scale rural, urban and semi-urban production depends mainly on the native breeds, e.g. Fayoumi, Balady and Dandrawy or improved native breeds such as Dokki 4, Montaza etc purchased from the Balady and/or commercial hatcheries as 3-6 weeks old birds or home produced from broody hens.

5.1 EXOTIC BREEDS

Two imported exotic breeds have been adapted and acclimatized to the Egyptian environment for more than 20 years, namely the White Leghorn (WL) and Rhode Island Red (RIR).

5.2 LOCAL BREEDS

There are four main native chicken breeds in Egypt and collectively they are sometimes referred to as Balady, although it should be noted that Balady is also a particular breed. Among the Fayoumi (F.F) Dandarawy (DAN) Balady (BB) and the Sinai Strain (SIN), the Fayoumi is the most important native breed. Al Azzab (built in 1983) is a national genetic bank for local pure bred poultry breeds and provides the rural backyard sector with suitable birds such as Fayoumi strain.

For more details on the Fayoumi breed, see chapter 3.4.3

Native Breeds and Meat Production

The FCR for native breeds (about 3kg of feed for each kg of live weight 1:3) is much higher than that for the exotic modern broiler strains (1:1.8) and the time taken by the native breeds to reach the marketing weight (60 to 80 days) is almost double the time required for the exotic strains to reach the market (35 to 42 days).

Improved native breeds productivity and economic potentials

The comparison between Native and Exotic breeds for table egg and meat production, do not necessarily reflect the current situation because of developments such as genetic improvement and changes in production cost and selling price. However, they do illustrate the narrow gap between native and exotic strains in egg production and the wide gap between them in meat production. The differences in favour of native strains for egg production support the argument that the focus on the improvement of the rural poultry production systems should be aimed at egg production. However, the recent trend (prior to HPAI) in the commercial broiler sector to use improved native breeds proves the economic gain improvement in the local strains. A further investigation to update these statistics is essential. Native breeds present an economical opportunity for both the commercial and rural sectors, which are quite clear and represent a source of genetic potential. Improved native breeds also present great potential for an exportable commodity that could used in rural poultry sectors in many developed and developing countries.

Improved Local Hybrids (Strains)

The improvement in local breeds took place in several stages. The first was the establishment of the first pure flocks. The second was stabilizing their genetic characteristics for both the Fayoumi and the Dandrawy strains in the mid forties. The third stage was the closing of the purebred flocks. The fourth was crossbreeding with exotic pure lines, such as White Leghorn, Rhode Island Red or, Plymouth Rock. Fayoumi x Plymouth Rock crosses gave rise to the Dokki 4. Fayoumi x White Leghorn x Plymouth Rock x Rhode Island gave the

Alexandria strain. Both the Alexandria and Dokki 4 hybrids played an important role in rural backyard poultry production (World Poultry Science Association ASSO - Egypt Branch, 1995)

Over 10 improved hybrids have been produced by crossing native breeds with exotic pure breeds: These are the Dokki 4 (DOK4), Mandarh (Mm), Golden Montazh (Gm), Matrouh (Mat), Silver Montazh (Sm), El-Salam (Sa), Bandara (Bm) and Baheig (Bah). Alternatively, crossing is carried out with commercial hybrid strains such as ISA Brown (IB) and White Bovines (WB) Neocoles, Hubbard, Saso etc. The strains and/or hybrids produced from such cross breeding are collectively called improved native.

General characteristics of native breeds and improved hybrid strains

The native and improved native breeds are easily adapted to harsh environmental conditions, have relatively low nutritional requirements, are resistant to some diseases and have high fertility and hatchability. Other production advantages include: high stocking density with 15 birds / m2 at 12 wks, higher marketing price and lower price fluctuation.

Genetic resources and potential

The genetic potential of the local native breeds is quite high and under proper management and feeding systems, the improved Fayoumi hen can produce over 220 eggs/year. A planned multi-disciplinary approach should be taken to preserve the rich and diverse genetic resources of Egypt's local endogenous poultry breeds and ensure the continuous improvement of their productivity through the introduction of new appropriate genes. The main objectives of such a plan should be the upgrading of the rural poultry production system. Currently a major global thrust on genetic preservation and biodiversity is reflected in the development of genome and data banks. These initiatives have come at an appropriate time because continued crossbreeding programs in rural poultry that do not consider gene preservation aspects would lead to erosion of the endogenous germplasm (Bessei, 1989).

According to Horst (1988), the genetic resource base of the endogenous chicken in the tropics is rich and should form the basis for genetic improvement and diversification. The objective is to produce a breed adapted to the tropics. Horst (1988) described nine major genes of the endogenous chicken that can be used in genetic improvement programs. Mathur et al. (1989) reported an increase in egg production through incorporating the naked neck gene (Na) in the cross breeding program of local Fayoumi.

Introduction of native breeds into the commercial sector

Prior to the HPAI crisis in Egypt in 2006, there was a growing upward trend in commercial poultry meat and egg production enterprises towards using improved local breeds. Improved local broiler (Shamourt) production doubled from 125 million in 2001 to over 250 million in 2005. The reverse occurred in exotic broiler production which dropped from 665 million birds down to 415 million birds over the same period (MALR, 2005).

Using local improved breeds under intensive production systems can achieve good profit margins. This proves the profitability of such operations but it may not prove improved productivity. The higher premium prices of native poultry products are in part due to consumer preference and the limited scale of production. The increase in the scale of Balady production by the commercial sector may result in Balady poultry products becoming market commodities rather than enjoying their status as niche poultry products. The premium price would then change narrowing the difference in the price between the local and the exotic poultry products. However, this trend is reversing (especially in the meat production sector) due to new regulations in response to HPAI. In addition, there is the issue of the limited availability of slaughterhouses adapted to handle the improved native breeds and the governmentally imposed new regulations regarding the closure of live bird markets.

Consumer perceptions

The meat and eggs produced by the native and improved native breeds are considered niche products hence they are sold at a premium price. They are preferred to those produced by exotic hybrids for a number of reasons, the foremost being the degree of meat maturity, taste, texture and strong flavors. The widely held belief that female hormones and contraception pills are used in commercial poultry feed has resulted in the consumer preferring the local native chicken meat and eggs. Negative perceptions over the association between the consumption of exotic, locally produced broiler meat and the prevalence of renal failure and sexual impotency has also influenced the sales of exotic strains. The positive

perception that local native broiler poultry are more nutritious, wholesome, and improve male libido and female sexuality may help in part to explain the increasing trend of balcony, garden and roof tops poultry rising among the middle and upper middle classes in residential areas in urban Governorates.

Pure lines lost during HPAI outbreak

Unfortunately, some of the pure genetic stock was lost during the HPAI out break. During the peak of the HPAI crisis, the Faculty of Agriculture Cairo University became infected with HPAI viruses, which led to the culling of all the poultry population present there. Pure breeds and the results of years of research and development and genetic selection were lost. Currently pure breed lines are located in a number of research centres under the supervision of the Ministry of Agriculture. The El-Azzab poultry project located near Fayoum City has a number of small pure line breeding flocks.

Future Protection of the Indigenous Poultry Gene Pool

In order to safeguard the genetic materials represented by pure breed strains from further outbreaks of avian influenza or other high risk pathogens, biosecurity levels as applied for specific pathogen free birds (SPF) should be applied at the pure line, great grandparents and grandparents' levels. A number of such units should be established with the sole purpose of preserving the pure lines and SPF egg production. The unit should be located to avoid commercial, rural poultry and migratory flying routes. Hatching eggs produced by these SPF birds should be moved to a SPF hatchery located in a different area. Pure-bred native breed DOC produced should be used in genetic improvement research units and the great grandparent's level. DOC from the research units are propagated in the grand parent farms to feed the commercial breeder level etc.

During an HPAI outbreak, a renewable stock of fertile clean hatching eggs should be kept away from the farms under optimum storage conditions. These hatching eggs could be used to restock a number of farms in different geographical areas after the HPAI crises have passed.

Chapter 6

Veterinary health, public health, biosecurity measures

6.1 HIGHLY PATHOGENIC AVIAN INFLUENZA

In 2006, the livestock population of Egypt was plagued by serious animal diseases including foot and mouth disease (FMD), Lumpy Skin Disease (LSD) & Ephemeral Fever (EF) in the cattle population and Highly Pathogenic Avian Influenza (HPAI) in the poultry production sector. The latter resulted in the culling of over 40 million birds. Consumers avoided poultry and meat products, and the Government imposed regulatory restrictions on balcony, roof top and backyard family run, small-scale poultry production units, closure of live bird markets and movement restrictions.

The number of poultry coops destroyed in Cairo alone during the Avian Influenza crisis was over 20,000 from rooftops and balconies in poor and middle class residential areas. Prices rose significantly; there was a three-fold increase in the price of table eggs and the cost of poultry meat doubled. Camel and veal meat also rose significantly. In short, the prices of all animal and fish protein sources almost doubled in response to severe shortages in supply rather than increase in demand. Consumption of animal protein dropped with serious health consequences such as protein malnutrition syndrome especially in the sector of the population living within and below the national poverty line (lowest, second & third quintiles).

TABLE 8:
Poultry culling and estimated losses during the period 17/2/2006 to 26/3/2006

Type of Poultry	Culled Birds ('000)	Bird Price (L.E.)	Losses Value (Million L.E.)
GP	27	261	7.05
Broiler Breeder	357	70	24.99
Layer Breeder	933	30	27.98
Layer Production	9,640	20	192.81
Broiler Production	3,980	5	19.9
Total	**14,937**		**272.73**

Source: MALR.2005

Effect on prices of poultry products and DOC

From mid October 2005, the consumption of poultry products, especially poultry meat, started to decline in anticipation of HPAI reaching Egypt, especially after the disease broke out in Turkey. There was a drop in broiler live weight prices of about 40% from October 2005 to February 2006 (Maged Ossman and Hamdey el Sawallhey, 2006). A drop in DOC prices followed the drop in consumption, of 10 to 15% prior to the arrival of HPAI in Egypt. The drop in the price of DOC started in October 2005 reaching a decrease of more than 70%. The price of one DOC was 0.5 L.E towards the end of December and 0.1 L.E in February compared to 2.5 L .E in June/July 2005 and a drop in the price of poultry meat and table eggs between 40 and 70% followed the same downward trend. Hundreds of thousands of DOC were culled in January and probably millions in February and April. Most hatcheries stopped the settings of hatching eggs from mid February 2006.

The breeder companies were the hardest hit as they could not sell their DOC or their flocks due to the ban imposed on movement. Moreover when a partial lifting of the ban was declared, allowing movement of birds to slaughterhouse, none of the existing abattoirs was available for such breeders.

Impact on poultry farms

Prior to the HPAI outbreak, governmental officials started visiting poultry farms. The objectives were to educate farm workers and monitor disease conditions. The message given was not clear and created panic and anxiety among farming workers and owners alike. When it was declared that HPAI had reached Egypt, workers started deserting their farms, causing more problems for farm owners who were faced with the task of managing, feeding, watering and egg collection single-handedly, or at best with very few workers. Some even hoped that their farms would become infected with HPAI to put an end to their daily feed cost and their own anxieties. All credit facilities were stopped during the crisis.

The media

The media played a very negative role in exacerbating the situation, inviting non-specialist speakers to discuss HPAI and human fatalities on almost every program and talk show.

The government had its own media campaign, which was good and well balanced, giving proper advice and the right message; however this largely went unheard. Apart from the use of the media, the government tried reaching the people through every possible channel. The HPAI crisis was included in the Friday prayer preaching but unfortunately, this created more public anxieties and panic.

HPAI should be dealt with according to its true nature as an avian disease that, under very special and rare conditions, may cause human fatalities. The public need to know about simple preventative measures and should be given facts on a need to know basis.

Dealing with poultry meat shortages

The Government lifted all importation tariffs on imported poultry meat to overcome the severe shortage in poultry production resulting from the massive mortalities and culling of birds during the HPAI outbreak. The ban was lifted from July until 31 December 2006 (extended to the end of March 2007) with the aim of importing 150,000 metric tons of frozen poultry meat. However, the actual imported amount has been far below Government expectations; consumers are reluctant and prefer fresh broiler meat. The Government of Egypt has lifted the ban on live bird markets, starting a gradual closure from 2008 in Cairo and other major cities with complete closure of all the country's live bird shops effective from 2010.

6.2 OTHER MAJOR POULTRY DISEASES

For regularly updated information on the status of notifiable and other transboundary poultry diseases, please refer to:

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

The OIE World Animal Health Information Database (WAHID) available at www.oie.int

Detailed information has not yet been sourced.

6.3 BIOSECURITY MEASURES

Detailed information has not yet been sourced.

Chapter 7

Current policies, legal framework

Detailed information has not yet been sourced.

Chapter 8

Analysis

8.1 CURRENT STRENGTHS AND WEAKNESSES OF THE POULTRY SECTOR

From 1999/2000, the poultry industries began to experience an unusual phenomenon of very unstable markets. Prices of DOC fluctuated between a peak of 2.5 L.E. and a rock bottom price of zero. The same applied for table eggs and poultry meat. As a result, broiler producers refused to receive DOC chicks and their prices dropped. Breeder companies started culling DOC and selling older breeder flocks, keeping only younger flocks, practice forced molting (i.e. pushing birds out of production by feed and water deprivation and other management procedures) and fertile hatching eggs were sold as table eggs causing a drop in egg price etc. A few small breeder farms shut down. Shortly after, the demand for broiler meat would exceed the supply and the price of broiler meat increased followed by increased demand for DOC. This was followed a short time later by a supply exceeding the demand and so on. Small and medium poultry producers, especially broiler and the small broiler breeder farms, were affected and had to reduce their activities or close down.

The instability of prices and supply and demand led to integrated breeder companies (layer and broilers) starting to export DOC and fertile hatching and table eggs to a number of Arab and African countries. The market started regaining its potential with the surviving companies being stable and profitable from mid 2003. However, in July 2005 the market started slowing down in fear of HPAI with prices tumbling down. Currently the market is booming with the price of 30 table eggs exceeding 18 L.E., broiler DOC around 3 L.E., and broilers wholesale price at 8 L.E. per 1 kg of live weight.

In order for small and medium-scale producers to survive, they must first solve the biosecurity problems associated with the clusters of farms, either by applying an “all in-all out” policy on a regional and geographical basis, or by moving out of the Nile valley and delta and into the surrounding desert. Only then can improvements to production standards be brought about through automation, modern technology inputs, high quality feed, superior chicks, ventilation, cooling/heating systems, mechanized feeding and water systems.

The horizontal integration of a number of small and medium scale producers will allow them to benefit from the economies of large-scale production, co-ordinate production cycles and create opportunities for marketing. These producers should establish contact with a feed mill, slaughterhouse or an integrated poultry enterprise for the supply of high quality DOC and feed at a fixed price. In return, the producer could sell his product at a fixed price to avoid price fluctuations.

Marketing is a major component in both the poultry meat and egg industries and a number of elements essential to effective marketing are either missing or inefficient. These include price setting and advertising and promotion. Exact figures on market size and potentiality are not available. Vital marketing infrastructure such slaughterhouses and cold store capacity is also insufficient; at present it can only accommodate 35% of the current exotic broiler production or 19% of potential production.

The importation of poultry parts poses a serious threat to the sector and may lead to the collapse of the poultry industry in Egypt.

8.2 PROSPECTS OF THE POULTRY SECTOR OVER THE NEXT FIVE YEARS

Detailed information has not yet been sourced.

8.3 POTENTIAL OF POULTRY PRODUCTION IN ACHIEVING MDGS

Uneven distribution of wealth, highly variable income levels, high population growth rates, scarce arable land and limited water resources have resulted in increasing food deficits, high levels of unemployment, exceptionally high illiteracy rates and an inefficient public sector. All these factors contribute to high poverty levels.

The following is a very brief analysis and assessment of the positive role rural poultry can play in the overall task of achieving Egypt's MDG, especially by alleviating poverty through social motivation and creating self-confidence in Egypt's most vulnerable sector of society, the poor. According to the Human Development Report of 1996, 24.3% of Egyptians live below the poverty line and 42% of the poor live in urban areas. The poor make up 18% of the total number of households. The percentage of poor persons dropped to 16.7% in 1999/2000 (United Nations and Ministry of Planning). Currently it stands at 20.2% poor with a 4.7% ultra poor (UNDP, 2005).

Results of CROPPENSTEDT (2006) indicate the importance of the rural livestock and poultry production in Egypt's long-term goal to reduce the poverty rate to 6% by 2022. Continued progress towards this goal will require rapid employment growth for which agricultural growth through its impact on demand for goods and services in the rural non-tradable sector would be of fundamental importance. Agricultural policies that help to raise unskilled labour wages and /or increase demand for unskilled labour as well as those that support small animal / bird production, in particular poultry, are best suited to help the poor (CROPPENSTEDT, 2006). The two main obstacles facing Egypt's agricultural sector development and its participation in creating new job opportunities are the limited land and water resources as previously mentioned. The total numbers employed in the agricultural sector work force remained almost unchanged from 1979 until 2003. The percentage of the population employed in agricultural activities has decreased from 57% in 1979/1981 down to 50% in 1996, to 31% in 2003 (FAO, 2005) and 29% in 2002 /2004 (CAPMAS, 2005; UNDP, 2005).

It is therefore very likely that the rapidly growing rural work force will increasingly depend on off-farm employment and small scale household enterprise activity (e.g. livestock and /or poultry production) for their income generation. Already non-agricultural wage and household enterprises activities account on average for about 41% of household income (CROPPENSTEDT, 2006). Scarce job opportunities in rural communities will result in a large rural to urban migration as individuals seek better job opportunities in industrial, construction and the trade sectors. As most of those individuals are illiterate and lack the proper required skills they usually end up in marginal casual occupations. While their main objective is to improve their income and living standards, most of them will remain below the national poverty line. Creating new off-farm self and non-self employment will help in reducing rural to urban migration.

Annex I

Who is who (contact list)

This information has not yet been sourced

Annex II

List of major projects – poultry sector

This information has not yet been sourced

Annex III

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Annex IV

Maps

No maps available