

The market for Egyptian farmed fish



Improving Employment and Income through Development of Egypt's Aquaculture Sector (IEIDEAS) Project

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Acronyms

BMP	Best Management Practice
CAPMAS	Central Agency for Public Mobilization And Statistics
CLAR	Central Laboratory for Aquaculture Research
EU	European Union
FAO	Food and Agriculture Organisation (of the United Nations)
GAFRD	General Authority for Fisheries Resource Development
GDP	Gross Domestic Product
gr	Grammes
IEIDEAS	Improving Employment and Income through Development of Egypt's Aquaculture Sector (project)
PCBs	Polychlorinated Biphenyls
SDC	Swiss Agency for Development and Cooperation

Conversion Factors

US\$ = LE 6.01

1 ha = 2.381 feddan

Executive Summary

Egypt's aquaculture production (921,585 tonnes in 2010) is by far the largest of any African country. The aquaculture sector, dominated by semi-intensive pond production of tilapia, makes a significant contribution to income, employment creation and food and nutrition security in the country, all of which are national priority areas given low per capita income levels, rising population, worsening food and nutrition security indicators, and official unemployment levels which have remained at around 10% for the last ten years.

The Improving Employment and Income through Development of Egypt's Aquaculture Sector (IEIDEAS) project funded by the Swiss Agency for Development and Cooperation (SDC) is a three-year project which commenced in December 2011, and which aims to support the development of the aquaculture sector in Egypt so as to increase productivity, profitability, and employment in the sector, and the nutritional status of poor consumers.

This report represents the output of a short two-week study to better understand the market for Egyptian farmed fish. The intention of the study was to provide an output which would cut-across, and potentially benefit, all five of the project outcomes.

The study provides some market data on sales volumes and values to explore the main determinants of prices for tilapia and mullet, and finds that volumes of domestic farmed supplies are likely to be far more important than other factors such as imports of fish, prices of chicken, or prices of marine products. The data also suggest that volumes and prices of the largest size grade of tilapia have an impact on the prices of smaller size grades. Mullet prices over the course of the year on the other hand appear to be more independent of mullet supplies.

The study then considers the main market segments selling farmed fish, and what their distinguishing characteristics are in terms of demand for farmed fish (e.g. sizes, product form, etc). In the retail sector, the two main market segments for tilapia and mullet sales at the present time appear to be independent fish retailers and street vendors, but there are also some small sales through multiple retailers. Within the retail sector there is also a fast growing sub-segment concentrating solely on the sale of live tilapia. Smaller volumes of sales also pass through the food service sector, primarily through specialist fish restaurants and fish fryers/grillers. There are not thought to be any sales of farmed fish through hotels/restaurants, event caterers, airline catering companies, or companies providing food for large institutions e.g. hospitals, schools, the army, etc. There is also a small but rapidly growing export market for whole fresh tilapia in countries in the Middle East. This market may have developed as a niche market with whole fresh tilapia being seen as distinct from frozen tilapia and pangasius fillets from China and Vietnam, but growth in this export business may also be being driven by the low prices achieved for sales of tilapia in the domestic market.

Perhaps most striking from the fieldwork and related analysis completed during this study is that:

- Almost all fish is sold in whole unprocessed form as a low value bulk commodity product, without any value-addition;
- There are many market segments which could offer scope for sales of tilapia, but which currently do not buy or sell any tilapia; and
- There has been very little work completed either to understand the complexities of the market for farmed fish in Egypt, or to try to assist with market development.

These factors have combined to generate a very real threat of collapse of profitability in the farming sector in the coming years if production continues to rise and real prices continue to fall. They argue for

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much greater efforts on the marketing of farmed fish, based on value-addition, and structured around a market segmentation strategy catering to the different needs of different market segments, and based on specific market promotion strategies. In particular, priority segments should be: women street vendors because of the importance of this segment in generating female employment and in the provision of affordable fish to low income consumers; sellers of live tilapia because of the value-added this generates and the quality of the resulting product; multiple retailers because of the likely growth in this segment in the coming years and the potential they provide as an outlet for fillets and value-added products (with associated opportunities for female employment); and hotels/restaurants, which again offer strong potential demand for fillets. Other market segments also offer potential for development which needs to be more fully explored. Different promotional strategies (e.g. mass media, TV chefs, price promotions, etc) appropriate for the development of sales into different market segments are likely to be necessary but all will need to be underpinned by improvements in fish handling and hygiene/quality, as well as some generic market promotion to change perceptions (and misconceptions) about the quality of farmed fish.

Developing and implementing a market segmentation strategy would require strengthening of representative organisations (e.g. producer organisations), and cooperation between stakeholders in the value-chain. The IEIDEAS project is well placed to play a key role in facilitating such developments, as well as in supporting additional research and implementing the market promotional strategies that might be required. The IEIDEAS project has a limited budget and timeframe however, and it is certain that other partners from within the government, the private sector, and other bilateral and multinational donor agencies, will be critical in supporting much needed developments in the market for Egyptian farmed fish.

1 Introduction and Background

1.1 Background to the study, its objectives and scope

This report presents the outputs of a short study, completed during May and June 2012, and prepared as part of the Improving Employment and Income through Development of Egypt's Aquaculture Sector (IEIDEAS) project funded by the Swiss Agency for Development and Cooperation (SDC). The IEIDEAS project commenced in December 2011 and will run for 3 years. This study was completed by Graeme Macfadyen (consultant to WorldFish Center²) and Ahmed Mohamed Nasr-Allah (WorldFish Center), supported by Malcolm Dickson (the team leader for the IEIDEAS project).

The overall goal of the IEIDEAS project is to create around 10,000 jobs through the development of Egypt's aquaculture sector in five governorates, benefitting 50,000 household members, to develop the aquaculture sector in general, and to contribute to the nutritional health of low income consumers. The project has five main outcomes in support of this goal, namely to:

- Reinforce profitability of aquaculture producers and create 9,142 jobs in the governorates of Behera, El-Fayoum, Kafr-El-Sheikh and Sharkia;
- Create/ retain 900 jobs in the aquaculture retailing sector;
- Increase farmed fish production in El-Mineya governorate and create 250 jobs, and pilot and disseminate methods to decrease environmental and water utilization impact of aquaculture;
- Facilitate efficient and sustainable value chains in the aquaculture sector and optimal institutional, policy and regulatory frameworks ; and
- Contribute to nutritional health of low income consumers.

Achieving these outcomes and the related project performance indicators is critically dependent on the successful marketing of farmed fish. This in turn requires a good understanding of the market for farmed fish; an understanding which is limited at the present time.

The objectives and scope of this specific study were therefore to provide an output that would benefit and cut across all project outcomes, and which would serve to:

- Review the existing literature and available data on the market for farmed fish in Egypt, and the current knowledge and perceptions about the market;
- Undertake a brief review of the market for farmed fish using a range of stakeholder interviews, so as to better understand the complexity of the market in Egypt;
- Draw conclusions about the implications of the study findings for the IEIDEAS project.

Given the short time-frame, it was acknowledged at its outset that the scope of this study would be limited and could only encompass a preliminary attempt to better understand the market, and this report should therefore be seen in that context. Additional comments related to the scope of the work completed are described in Section 1.2 below.

² www.consult-poseidon.com

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1.2 Study methodology and approach

This study was completed using a small team of two fisheries experts, one international and one local. The field work was completed over a two-week period with one additional week used for data analysis and report writing (see Appendix 2 for the study schedule).

The field work made it possible to meet with and interview the following stakeholders, all in Cairo unless otherwise stated below (see Appendix 3 for specific details):

- Fish farmers (in Abbassa);
- Fish traders (in Abbassa);
- El-Obour wholesale market management;
- El-Obour auction wholesaler specializing in farmed fish;
- El-Obour market traders;
- Hotel chefs;
- The Egyptian Chefs Association;
- Fish retailers at Moneab/Giza retail fish market;
- Supermarkets;
- Fish restaurants;
- Fish fryers; and
- Makro (a business to business wholesaler).

Meetings and discussions with consumers were not part of the stakeholder consultations completed during the study, and the study relied instead on the understanding and views about the market by those selling to end consumers.

Apart from the meetings with fish farmers and traders in Abbassa which used a focus group approach, all other meetings were individual, face-to-face meetings. All consultations used a semi-structured interview process focussing on the following key areas:

- The main determinants of prices for farmed fish;
- The main market segments currently selling farmed fish (and consideration of others that might be interested in doing so), and their characteristics in terms of demand; and
- Trends in the market, and temporal and regional variations.

Unlike other outputs already produced or being completed by the project (e.g. the seed value-chain analysis [Nasr-Allah et al 2012]), this study does not attempt to generate quantitative data on the different market segments in terms of operational or net profits, or employment creation, but rather focuses on a more qualitative understanding of the market. The study primarily concentrated on an analysis of the domestic market for farmed fish in Cairo, although brief consideration is also given to exports.

1.3 Structure of this report

Following this introduction, Section 2 provides some information about the international market for farmed tilapia, before reviewing relevant literature (see Appendix 1) to summarise what is already known or hypothesized about the market. This section also presents a range of interesting data obtained during the study, which shed light on the current market for farmed fish in Egypt and the determinants of prices.

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Section 3 presents the main findings of the study in terms of the different market segments for farmed fish in Egypt and their main characteristics in terms of demand (current and potential), and trends in the market. Given the fact that this report and its findings are primarily based on a survey of the market in Cairo completed during a short period at a specific time of the year, this section also considers how market demand in different market segments may vary over time and by area. Brief discussion is also provided on issues related to quality and traceability, as they pertain to the marketing of fish.

The findings of this study have a number of potentially very important implications for the IEIDEAS project, and these implications are discussed in Section 4. They include possible areas of intervention by the project in the marketing of farmed fish, a revision of some of the performance indicators in the project logframe, and some possible areas of further research.

2 Existing data and information about the market for Egyptian farmed fish

2.1 International market issues

Given increasing levels of global trade in fisheries products, especially from and within developing countries, and the strong focus of Egyptian aquaculture production on tilapia, the market for Egyptian farmed fish must be considered within the global market for tilapia and other potential competitor products. International market conditions and trends may have some bearing both on the market for farmed fish in Egypt based on the potential for imports of tilapia and other species to compete with Egyptian product in the domestic market, and on the potential for exports of Egyptian production. While the focus of this study was on the domestic market for farmed fish in Egypt, some information about international marketing issues is therefore provided below.

2.1.1 Nile tilapia

As noted by Josupiet (2010), tilapia production has been booming in recent years, with significant increases in production in all regions of the world. FAO data for 2010 (available from FishStatJ) show that total global farmed production of Nile tilapia reached more than 2.5 million tonnes in 2010, representing an increase of 161% over the 2000 production figure. China is both the world's leading producer of farmed Nile tilapia and the leading global exporter, while Egypt is the second largest producer. Table 1 and Table 2 below show the large difference between total production and total exports, and when considering the dominance of China in global exports and the very small quantities of exports from other countries, suggest that many producing countries place a strong focus on production of tilapia for their domestic markets. Indeed the supply of domestic markets by producing countries appears to be a growing trend (Globefish market report, March 2012).

Table 1: Global farmed production of Nile tilapia, 2000 to 2010 (tonnes)

Country (Country)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
China	548,261	582,402	611,165	696,169	774,662	844,210	958,983	850,211	832,698	943,478	998,890
Egypt	157,425	152,515	167,735	199,557	199,038	217,019	258,925	265,862	386,186	390,280	557,049
Thailand	82,363	84,480	83,780	98,336	160,241	203,737	205,326	213,812	217,246	221,043	179,240
Philippines	77,642	89,507	104,361	111,328	118,095	126,563	160,482	180,064	188,103	189,363	168,399
Indonesia	40,836	50,876	60,437	71,790	98,102	151,363	179,934	206,904	291,038	323,389	429,053
Laos	18,928	22,499	26,872	29,205	29,205	15,070	15,050	15,866	16,129	18,817	20,580
Ecuador	9,201	10,318	12,036	16,958	18,153	19,142	19,368	20,000	21,000	37,461	47,733
Costa Rica	7,700	8,000	12,490	14,090	17,989	16,493	11,677	17,687	19,380	18,904	21,334
Jamaica	4,500	4,500	6,000	2,513	4,200	4,795	7,543	5,600	5,800	5,030	3,900
Saudi Arabia	3,885	3,918	1,854	2,400	2,276	2,902	3,402	3,606	3,673	3,837	3,382
Others	19,898	24,612	28,854	29,531	36,299	57,761	70,006	83,266	80,563	88,987	108,492
Totals	970,639	1,033,627	1,115,584	1,271,877	1,458,260	1,659,055	1,890,696	1,862,878	2,061,816	2,240,589	2,538,052

Source: FAO. Note. When including 'tilapia nei', total production in 2010 was 3.12 million tonnes with the difference in volume produced primarily by Philippines, Taiwan, Brazil and Colombia.

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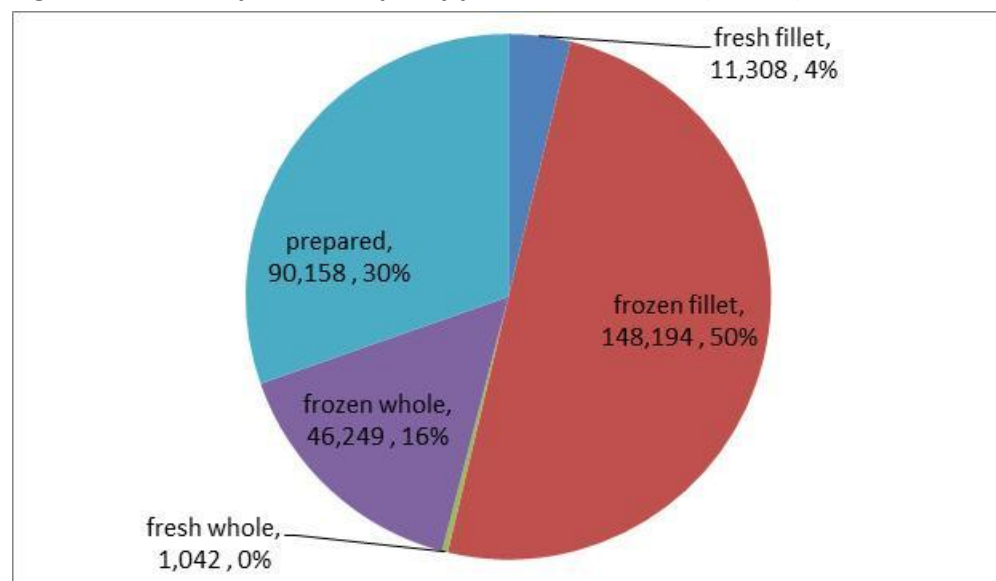
Table 2: Global exports of tilapia (all product forms), 2000 to 2009 (tonnes)

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
China	...	...	31,081	58,939	86,646	106,792	164,008	215,227	224,382	258,062
Ecuador	...	...	...	...	...	...	...	2,442	11,066	12,973
Thailand	...	...	4,299	5,288	8,086	13,513	18,735	12,905	20,025	12,620
USA	1,124	1,402	4,396	5,545	3,084	6,023	4,972	3,094	2,303	3,960
Taiwan	2,264	2,973	4,487	3,633	3,581	4,802	4,659	5,089	4,425	3,835
Honduras	1,126	1,629	3,501	3,019	4,183	7,642	8,281	8,194	8,238	3,593
Somalia	...	...	...	...	...	...	...	...	447	894
Oman	...	...	26	-	423	-	-	-	261	502
Costa Rica	205	127	60	134	127	258	109	321	131	269
Brazil	...	...	6	80	270	315	165	126	108	224
Others	168	82	47	55	86	185	81	29	274	19
Totals	4,887	6,213	47,903	76,693	106,486	139,530	201,010	247,427	271,660	296,951

Source: FAO

Exports of tilapia by product form in 2009 (see Figure 1) showed a strong concentration for exports of frozen fillets (50% of total volumes), with very little product being exported in whole fresh form (a potentially significant factor for Egypt as discussed later). Prepared or preserved products are also significant (30% of global exports in 2009), and were only exported by China in 2009.

Figure 1: Global exports of tilapia by product form, 2009 (tonnes)



Source: FAO

At the global level, imports are very strongly concentrated on the USA market (Table 3), with the USA accounting for 89% of global imports in 2009.

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Table 3: Global imports of Tilapia (all product forms), 2000 to 2009 (tonnes)

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
USA	40,469	56,338	67,188	90,285	112,977	134,978	159,320	176,895	181,014	184,115
Israel	...	...	...	...	...	00	571	4,452	4,981	6,014
Canada	1,089	1,380	1,534	2,065	2,405	3,029	3,380	3,821	3,381	3,923
Kuwait	...	...	1,525	1,875	1,648	2,432	1,238	1,097	407	2,733
Colombia	...	...	...	...	...	...	...	...	1,043	1,740
Korea	...	...	...	711	1,325	1,764	1,409	2,236	1,928	1,381
Angola	...	...	...	22	72	194	439	363	452	1,178
Congo	...	...	...	...	...	...	...	...	71	956
Oman	...	...	...	69	8	-	-	-	537	898
Costa Rica	00	00	1	12	25	120	424	349	727	803
Others	267	301	629	815	1,499	762	7,684	6,929	2,070	3,821
Totals	41,825	58,019	70,877	95,854	119,959	143,279	174,465	196,142	196,611	207,562

Source: FAO

Egypt is currently not permitted to export farmed fish to the EU, so any short- to medium-term export potential probably lies in Middle-Eastern and North African (MENA) markets. Feidi (2010) suggests that almost all tilapia produced in the MENA region is consumed locally. He suggests that the future outlook for the domestic market for tilapias in the MENA region is encouraging given predicted population increases in the region, interest in increasing production of tilapia, and a growing consumer acceptance of tilapia. He further highlights that encouraging possibilities to export value-added tilapias products may be available not only inter-regionally, but also to the European and USA markets (although this supposition is not backed up by empirical data on relative production and transport costs to such markets, compared to China and other leading global exporters).

Stakeholder discussions completed during this study have suggested some exports of whole fresh tilapia to countries in the Middle East, even though no data have previously been published on tilapia exports – indeed many existing studies on the Egyptian tilapia sector state that such data are not available, primarily because GAFRD do not publish export data by HS code or species as part of the annual Fish Statistic Book. This study has however managed to obtain and analyse export data from the Central Agency for Public Mobilization And Statistics (CAPMAS) in order to shed some light on exports of tilapia. CAPMAS (<http://www.msrintranet.capmas.gov.eg>) provides data on the annual import and export of fish products by HS code and species, by volume and value.

Exports of all fish products from Egypt, and exports of HS code 30269000 both show an upward trend over the last three years (see Table 4). HS code 3026900 relates to whole fresh fish, and is assumed to be exclusively tilapia. Stakeholder interviews have confirmed that there are no exports of tilapia fillets, frozen whole tilapia, or preserved tilapia. The data do not allow for complete certainty that some other fresh fish exports are not also included within HS code 3026900. However, this appears unlikely given the strong domestic demand for marine fish, and the fact that in 2011 exports of whole fresh fish were strongly concentrated on exports to five countries, which together accounted for 90% of total exports: Saudi Arabia (6,100 tonnes / 39%), Israel (5,200 tonnes / 33%), Kuwait (1,241 tonnes / 8%), UAE (943 tonnes / 6%), and Qatar (695 tonnes / 4%). All these countries were suggested during interviews as being the main export destinations for tilapia.

Table 4: Export of all fish products and whole fresh fish 2009 – 2011 (volume and value)

Year	Exports of whole fresh fish (HS code 30269000)		Total Egyptian exports (all HS codes)	
	Volume	Value (\$)	Volume	Value (\$)
2011	15,776	14.9 mn	17,646	21.3 mn
2010	7,100	7.8 mn	10,596	15.0 mn
2009	1,934	0.35 mn	7,594	13.5 mn

Source: CAPMAS. Note export value data are not thought reliable as would equate to a price of \$ 0.95/kg or LE 5.7/kg in 2011.

The increasing trend in exports of tilapia is thought to be driven by strong demand and good prices in export markets compared to domestic prices. This may be a result of strong demand in export countries, but also the lack of market penetration into higher value-markets in Egypt and the low domestic prices for tilapia. Better market segmentation and added value in domestic markets (see later discussion in this report) might reduce the need/benefits of exporting tilapia to countries in the Middle East, with the risks and logistical requirements associated with exports. In other countries such as Thailand for example, where extensive levels of value-addition and market segmentation allow for good market opportunities within the country, exports of tilapia are relatively small given the size of domestic production (Belton, B. Pers. Comm, 2012). On the other hand, the data presented above (Figure 1) showed the very small amounts of fresh whole tilapia being exported on a global level, and it is therefore also possible that exporters in Egypt have identified a niche market in Middle Eastern countries for a product which can be considered different to both frozen and fresh tilapia fillets being exported by China. This niche market may be serving Egyptian nationals living and working overseas, although this study has not verified that assumption.

2.1.2 *Pangasius and Nile perch*

Pangasius catfish and Nile perch are two species which could be competing directly with tilapia in the international market (and potentially also in Egypt). The table below shows that frozen catfish fillets dominate global exports of all forms of catfish and Nile perch products.

Table 5: Global exports of catfish and Nile perch by product form, 2009 (tonnes)

Catfish fillets, fresh or chilled	471	0.2%
Catfish fillets, frozen	247,518	82.4%
Catfish steaks, frozen	45,002	15.0%
Catfish, fresh or chilled	25	0.0%
Catfish, frozen	4,821	1.6%
Nile perch fillets, frozen	2,443	0.8%
Total	300,280	100.0%

Source: FAO. Note FAO data do not distinguish between different catfish species in export data

In terms of global imports, Nile perch fillets originate solely from Lake Victoria (Uganda and Kenya), and catfish exports from six countries: Vietnam which accounted for 98.1% of export volumes in 2009 (292,300 tonnes out of a total of 297,837 tonnes), with the remaining very small amounts from Thailand, Taiwan, USA and Uruguay.

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The extent to which global trade in these products and imports to Egypt creates competition with Egyptian farmed fish in the domestic market has been examined during this study through an analysis of data on imports. Neither tilapia nor pangasius is reported to be subject to any import duty in Egypt.

GAFRD aggregated data show significant volumes of total fish products imported to Egypt (256,813 tonnes in 2010, 135,523 tonnes in 2009, and 136,807 tonnes in 2008). Analysis of disaggregated CAPMAS data by HS code shows that these imports comprise a very large range of species, but are predominantly of frozen marine products, which account for 93% of the volume of all fish imports (see Table 6)

Table 6: Groups of Egyptian imports of fish by type and country or origin

Description	% of volume of all imports	Main source of imports
Herrings (<i>Clupea harengus</i> , <i>Clupea pallasii</i>), Frozen, Other Than Livers And Roes And Other Fish Meat Of Heading. 0303510000	4.3%	Norway and Netherlands
Mackerel (<i>Scomber scombrus</i> , <i>Scomber australasicus</i> , <i>Scomber japonicus</i>), Frozen, Other Than Livers And Roes And Other Fish Meat Of Heading 0303740000	19.0%	Japan, Taiwan, Spain, South Korea, Netherland, Ireland , USA and Norway
Other Fish, Frozen, Other Than Livers And Roes And Other Fish Meat And Fish Fillets Of Heading. 0303790000	46.4%	Netherland, Norway, Ireland, Japan, Spain, North Vietnam
Other Fish Fillets, Frozen. 0304290000	6.6%	North Vietnam
Shrimps And Prawns, Frozen, Whether In Shell Or Not, Fit For Human Consumption. 0306130000	15.3%	North Vietnam, Pakistan, India, China, UAE, Thailand, KSA

Source: CAPMAS

Imports of products competing most directly with domestic production of tilapia are likely to be pangasius fillets, and stakeholders consulted during this study referred to imports from Vietnam. A review of CAPMAS import data confirms the presence of imports of fillets from Vietnam. Imports in 2011 of frozen fish fillets were 11,268 tonnes (\$28.9 mn), with 10,817 tonnes (96% of the total) valued at \$27.7 mn originating from Vietnam. The CAPMAS data are interesting in terms of the relatively low volume of frozen fillet imports, compared to total domestic farmed production of tilapia. Taking an approximate conversion factor of fillets to whole fish of 1:3, imports of frozen fillets in 2011 represent just 3.7% of the total volume of aquaculture production in Egypt. It is also possible that some frozen whole catfish is imported from Vietnam under CAPMAS code 0303790000. However, this is unlikely given the dominance of fillet exports in Vietnamese exports (see Table 5). Thus we can conclude that there is probably less direct competition between Vietnamese catfish and Egyptian tilapia in the Egyptian market than is often thought. In addition, given that the CAPMAS data do not show any significant imports of fish from China, and given Chinese concentration on tilapia exports rather than pangasius exports, it also seems unlikely that in the domestic market there is any direct competition for domestically farmed tilapia with pangasius or tilapia imported from China. Although as noted above, overall increases in imports to Egypt over recent years may have caused some increases in competition with tilapia.

2.2 Information about the market for farmed fish in Egypt

2.2.1 Access to information about the market by those in the value-chain

Discussions with stakeholders completed during this study suggest that farmers may not *always* have good market information, relying primarily on information provided by the traders they sell to and from other farmers. However even for farmers, there is *generally* good knowledge of wholesale prices on a daily basis obtained from phone calls between themselves and from information obtained from the El-Obour wholesale/auction market (see below). The situation is likely to be the same in other governorates, especially in Kafr El Sheikh, which also has a large wholesale/auction market. The extent of market price information available to producers is assisted by the geographical proximity of many farming areas to the wholesale markets, and also their network of contacts. Farmers do not however have a good idea about volumes of fish on the market on a daily basis, or about where the product they produce is finally sold (e.g. by market segment/outlet) and for how much.

Traders buying from farmers and selling either through El-Obour, or direct to other market segments (e.g. retailers, other traders) are key players in the marketing chain, and as would be expected generally have an extensive network of communications with individuals in other markets throughout the country, with each other, and are well informed about the market (and daily and regional differences). This information extends above just price information, to include other key market information such as volumes, quality, etc. These traders also have a better ‘feel’ for the importance of different market segments and their requirements.

Auction traders at El-Obour, traders buying from them and supplying retailers and restaurants, and retailers buying direct from El-Obour, all have intimate knowledge of current prices, as would be expected.

The overall impression gained during the study is therefore of a value-chain that is characterised by good availability of information about prices throughout the value-chain.

Despite the general availability of good market information on prices, broader types of data and information on the market for farmed fish in Egypt are not currently available. For example, there are no published data on the relative importance of different marketing channels in terms of the total volume or value of sales. Likewise, while we have been able to draw out some conclusions about competing import products, and exports markets for farmed tilapia, no such data are reported regularly by GAFRD.

2.2.2 Sources of data on fish prices

There are two main sources of ‘real-time’ data about the market for fish in Egypt:

- data published by the El-Obour market in Cairo (www.obourmarket.org.eg);
- data available from GAFRD (www.gafrd.kenanaonline.com); and

The former provides open access price information on a daily basis for the previous day (or sometimes for the same day) and volumes of sales data by subscription, while the latter source uses data provided by the market (typically 1-2 days in arrears) but presents historical daily information.

The data presented on the El-Obour market website includes information by species (and where appropriate size grade) for:

- The minimum daily price;
- The maximum daily price; and

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- The method of sale/packaging (e.g. in plastic boxes)

Data on farmed species are provided for:

- Tilapia grade 1 (375-600 grammes)
- Tilapia grade 2 (250-375 grammes)
- Tilapia grade 3 (100-250 grammes)
- Mullet grade 1 (250-400 grammes)
- Mullet grade 2 (150-250 grammes)
- Catfish

The size grades for tilapia correspond broadly with the three sizes grades for which data were collected during a previous value-chain study Macfadyen et al. (2011). Sales data at El-Obour are also recorded on 'Aswan tilapia' (large, wild tilapia from Nasser lake sold whole and fresh) and 'tilapia fillet' (which are produced from catches from Nasser lake and sold in frozen form).

The El-Obour market also collects and records on a daily basis the volume of sales for each species, and the average selling price. Unlike data on prices data on the volume of sales are not provided daily, but a few months in arrears. Some historical data on the volume of sales are also provided to GAFRD and included on their website.

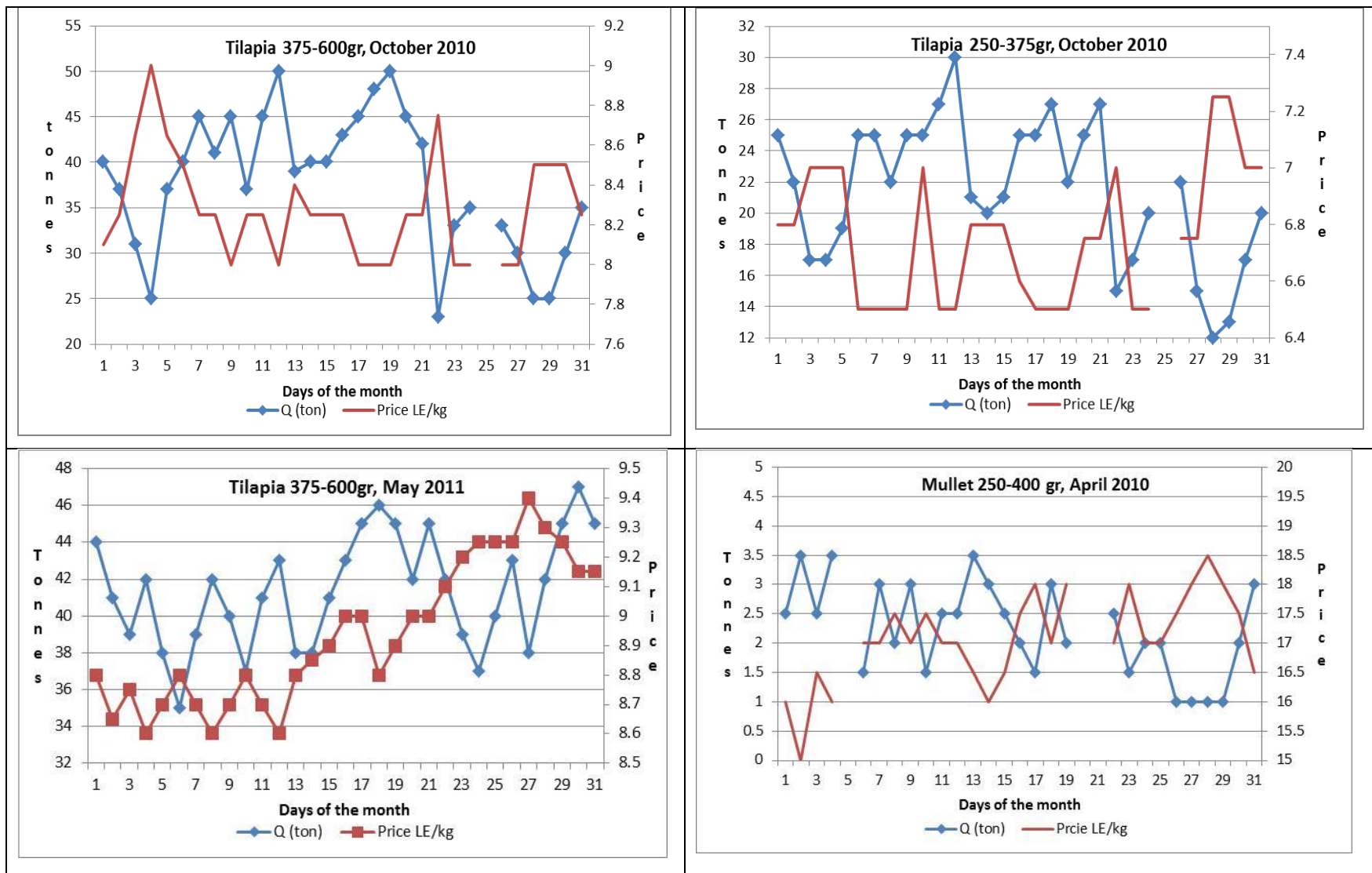
2.2.3 Analysis of El-Obour market data on sales volumes and prices of farmed species

This study has reviewed and analysed data available from the El-Obour market website. Even though econometric analysis has not been completed and suppositions made in this section should therefore be considered with that in mind, the data do appear to show a number of interesting and apparently clear findings.

Figure 2 below for example shows the very strong inverse relationship between daily volumes of supply to the market and daily prices i.e. there is an almost mirror image of volumes and prices, and price elasticities of supply appear to be very high. This is the case for different grades of tilapia, and also for mullet. It also shows the relative volatility of prices between days.

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Figure 2: Daily tilapia and mullet volumes and average sales prices at El-Obour market (selected months and grades)



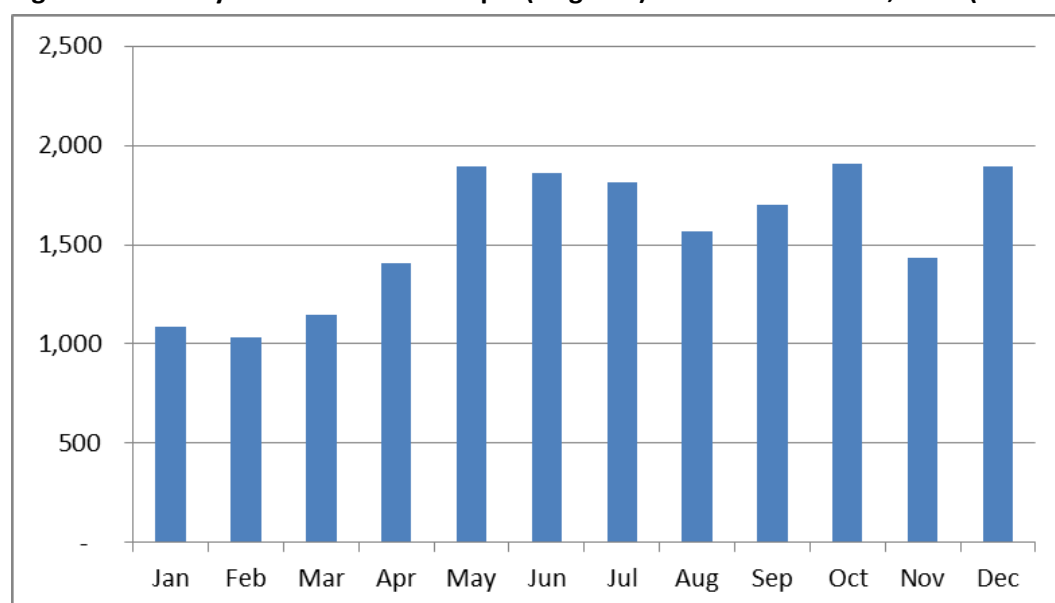
Source: Authors' analysis of El-Obour market data. Note. Data provided for months with high total volumes of sales of individual species

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In considering monthly sales volumes and average prices, Figure 3 below shows that sales of tilapia during the winter months of January to April are considerably lower than for other months of the year, but that from May onwards sales volumes are fairly consistent, with a drop in August possibly due to increases sales of tilapia in coastal areas of the country with people moving to the coast for vacations, and thus less fish passing through El-Obour market. There does not appear to be a strong peak in sales towards the end of the year as is often stated.

Also interesting is that the volume of sales at El-Obour market are not that significant in terms of national production. Total sales of all farmed species at El-Obour market in 2010 (tilapia, mullet and catfish) were 20,881 tonnes, which represented under 3% of the total volume of farmed production in 2010. This suggests both that much of the fish being consumed in Cairo is by-passing the market and being sold direct by traders to retail markets and restaurants, and also that demand for fish outside of Cairo is strong.

Figure 3: Monthly sales volumes of tilapia (all grade) at El-Obour market, 2010 (tonnes)



Source: Authors' analysis of El-Obour market data

However, as shown by Figure 4, when considering the volume of sales at El-Obour market for different grades of tilapia it is clear that:

- the volumes of sales of tilapia under 250 gr remain at a low and constant level throughout the year;
- volumes of sales of tilapia 250-375 gr are low in the beginning months of the year before rising rapidly in May, after which time they are static or slightly declining during the rest of the year; and
- volumes of sales of the largest size grade (>375 gr) increase throughout the year reflecting the availability of fish from farms due the production cycle, with a strong peak at the end of the year.

Based on their field work in four governorates, Macfadyen et al. (2011) reported that the largest size grade of tilapia represented 51.6% of the volume of total farm production and 58.2% of the volume of farm production of tilapia, the second size grade 22.5% of total production and 25.3% of tilapia

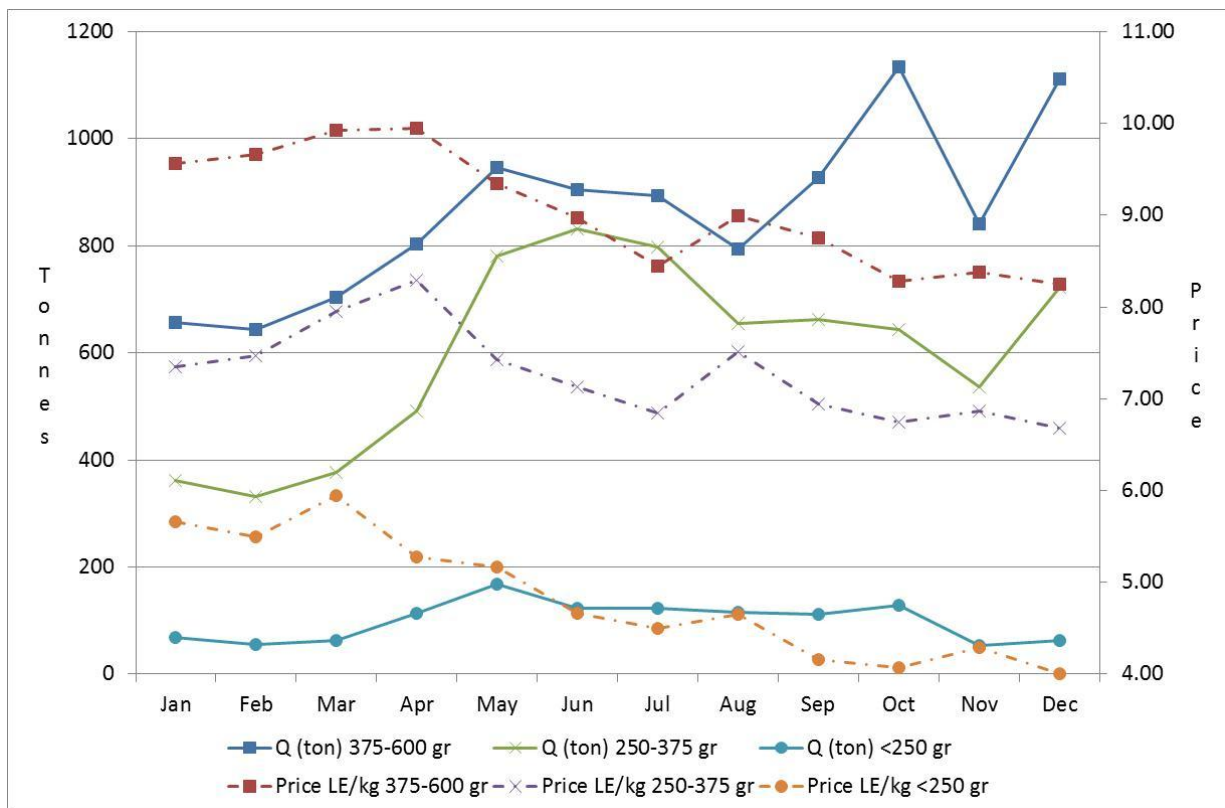
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production, and the third size grade 14.7% of total production and 16.5% of tilapia production. The El-Obour market data show that in 2010, 55% of sales were of the largest size grade, 38% were the middle grade, and just 6% were the smallest grade. These respective figures provide confidence in the data presented in the 2011 study, given that stakeholders consulted in both the 2011 study and during this market study consistently reported that smaller fish do not tend to be sold at El-Obour but are sold in more rural locations to poorer income consumers.

Figure 4 also suggests that while monthly volumes and average sales prices are inversely related for individual size grades of tilapia, as the year progresses the increased volumes of the largest size grade (>375 gr), and larger volumes compared the smaller size grades, causes not just the price for the largest size grade to fall but also the prices of the two smaller size grades to fall as well i.e. prices for the two smaller size grades are determined not just by their own volumes, but also by the volumes and prices of the largest size grade.

During 2010, average prices of tilapia grade 250-375 gr were 80% of average prices for tilapia >375 gr for the year as a whole, with only a small monthly range (77%-83%) in this relationship suggesting a rather fixed and consistent relationship. Likewise average prices of tilapia grade <250 gr were 53% of average prices for tilapia >375 gr over the year, and again showed only a small monthly range (of 48%-60%).

Figure 4: Monthly volumes and sales prices for tilapia (by grade) at El-Obour market, 2010



Source: Authors' analysis of El-Obour market data

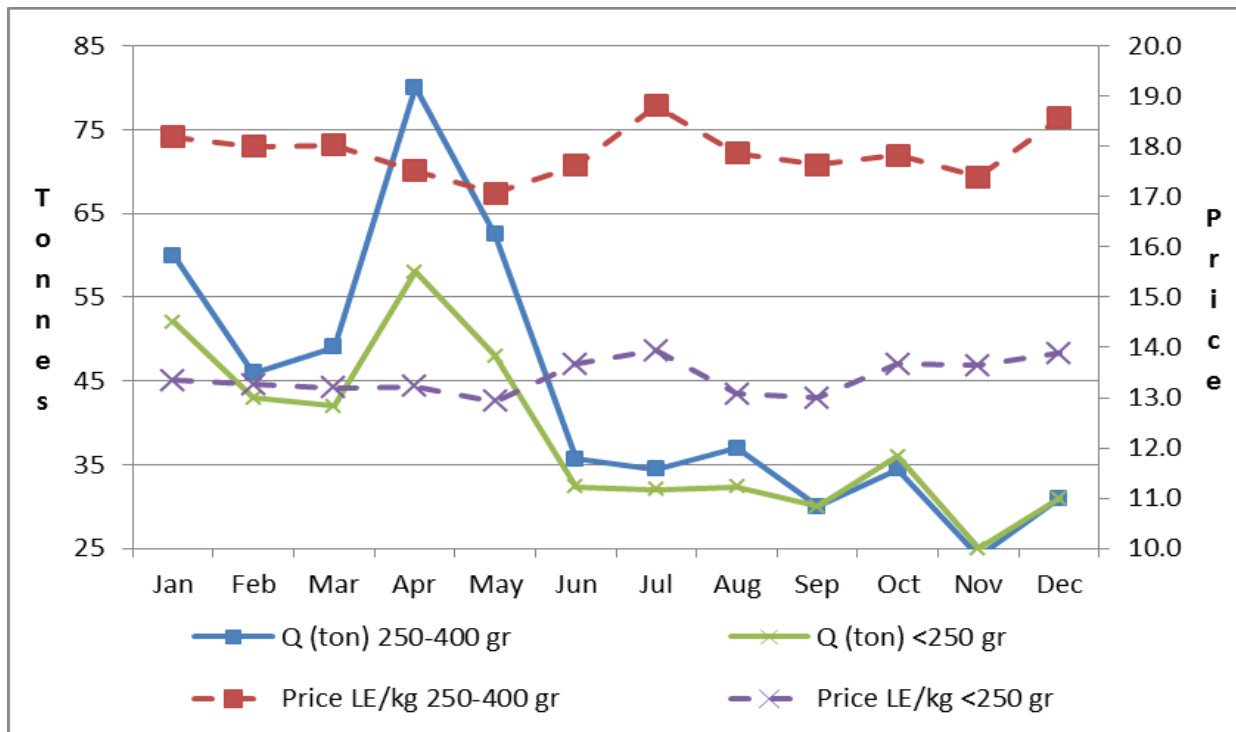
Given the apparently very strong and clear relationship between tilapia volumes and sizes, and tilapia prices, and that there is probably only limited competition in the domestic market from imports, it seems very likely that domestic volumes of supply and the size of tilapia are by far the main

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determinants of prices for tilapia. Further evidence for this comes from the very large volumes of farmed production compared to marine production, and the far higher unit prices of marine whitefish species, both of which mean there is probably only a very weak link, if at all, between marine fish volumes/prices and prices of tilapia. Some stakeholders consulted during this study suggested that there could be a link between tilapia and chicken prices, because chicken is similar in price. However other stakeholders felt that this link is overstated, with consumers tending to choose between red meat and chicken depending on income, with tilapia and chicken being viewed as ‘different products’.

The monthly data for mullet sales however tell a different story to the monthly tilapia data presented above. As shown below (see Figure 5), sales of mullet at El-Obour market actually decrease during the year, as well as exhibiting a strong peak in April. And unlike prices for tilapia which appear strongly determined by sales volumes, mullet prices of both grades appear largely independent of the monthly volume of mullet (and tilapia) sales on the market. The fact that price elasticities of supply for mullet seem to be low, coupled with the higher prices for mullet compared to tilapia, suggest that a production strategy focusing on greater proportions of mullet (in absolute and relative terms compared to tilapia) may³ serve to increase profitability and value-added in the value-chain.

Figure 5: Monthly volumes and sales prices for mullet (by grade) at El-Obour market, 2010



Source: Authors' analysis of El-Obour market data

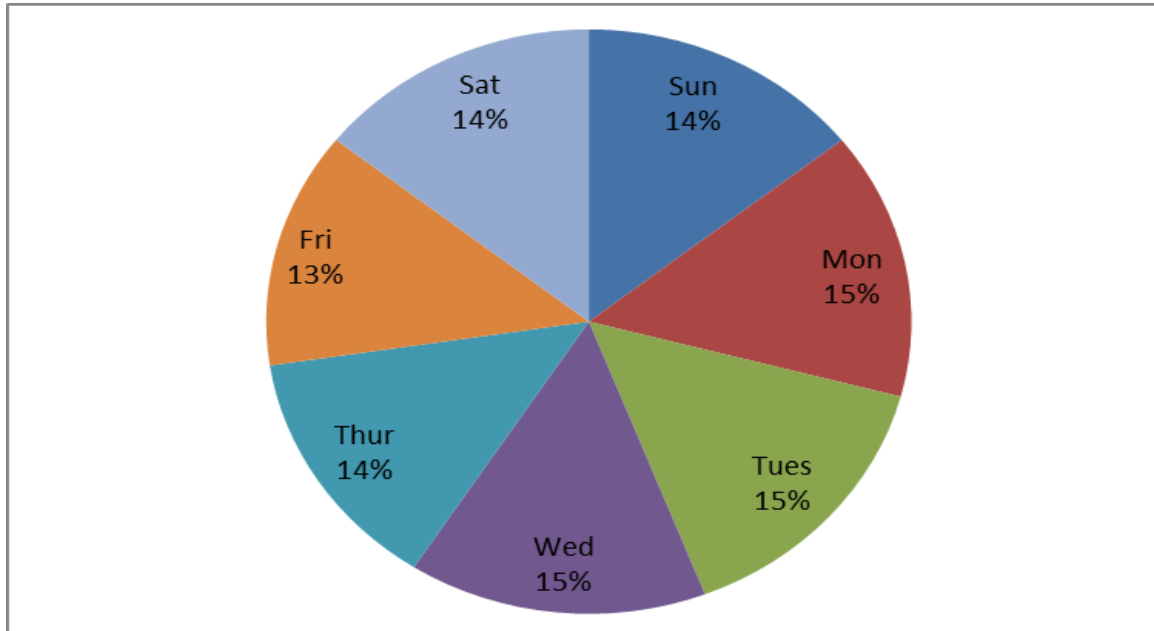
This market study also examined El-Obour market data on the sales volumes by day of the week to determine whether there are any particular days of the week which exhibit larger sales volumes of

³ Subject to prices becoming more sensitive to supply if overall volumes of mullet production/sales were to increase

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tilapia than others. As Figure 6 below shows, there is no concentration of sales on any particular day, although sales tend to be very slightly less on Fridays than on other days.

Figure 6: Daily sales volumes of tilapia at El-Obour market by day of the week (May to October 2010)



Source: Authors' analysis of El-Obour market data

2.3 Previous studies on the market for farmed fish in Egypt

A number of reports/publications have been published in recent years, some focussing specifically on the market for Egyptian farmed fish, and some more generally on the farmed fish sector but which contain some discussion about the market for farmed fish. These publications have been reviewed so as to ensure that this study and the IEIDEAS project as a whole benefit from previous work, and so as to summarise what is currently known about the market for Egyptian farmed fish.

Feidi (2004) provided a review of the market for seafood in Cairo. Some key aspects of demand noted were the strong preference for fresh fish (mostly in whole form), fresh mullet being considered the 'tastiest' fish, the import of frozen fish to meet strong domestic demand with domestic supplies not able to fulfil all domestic requirements, average annual consumption per capita of 14.5 kg⁴, and the fact that the average Egyptian family may spend 50-70% of their annual income on food consumption. The study noted that most poor consumers shop locally on foot, and that the development of supermarket chains is more for the upper and middle income population. It also notes the potential impact of tourist resorts willing to pay high prices for fish on the availability of affordable fish for poorer consumers. The study presented some data on fish prices by species for two supermarkets and for fish shops in high income and medium income areas, and suggested that prices for tilapia in supermarkets lie between those exhibited in fish shops in high income areas and those in medium income areas. Data are also presented on the marketing margins for different species/product forms.

⁴ Similar to the present time, with the IEIDEAS project logframe suggesting a baseline figure for per capita consumption in 2010 of 15.8 kg

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The study acknowledged the difficulty in establishing/understanding the main determinants of prices given the different influences of domestic supplies of different species, imports, fish sizes, seasonality in supply, meat and poultry prices, the time of sale, etc. In addition to the main wholesale/retail market at El-Obour (for which 51 individual wholesalers were identified with 28 of them focussing on tilapia), other important retail markets in Cairo are identified at Al-Zaitoun, Embaba, Giza and Shubra (see Section 3 for this study's findings), as well as other outlets for fish as follows: multiple supermarket retailers (selling fresh and frozen fish); 'superettes' (small independent stores not selling any fresh fish); public sector fish shops; consumer cooperative shops (in decline, and selling all food commodities at low prices); small neighbourhood grocery shops (only selling some canned fish); speciality fish retail shops/traders; and restaurants, hotels, tourist villages and resorts.

Norman- López and Nasr-Allah (2006) provided an overview of farmed tilapia in Egypt as a whole and also included some information on the market. They suggested that market demand is likely to increase in future years based on population and income growth forecasts, and noted that demand can vary considerably by season (with higher demand in summer months) and religion (based on religious holidays), and that there is closer competition between chicken and fish than between red meat and fish due to the greater similarity in prices between fish and chicken. The authors also highlighted that the destination of fish produced by farms is not well known. However, they suggested that smaller fish tend to be sold to lower-income consumers, with larger fish being sold in restaurants and in retail outlets in higher income areas. Data presented from 1995 to 2005 showed that prices for the two largest sizes of farmed tilapia have declined steadily since 1997, while prices for smaller fish have risen very slightly in absolute terms. This pattern was experienced even though quantities of tilapia on the El-Obour market by grade suggest that over 2000 to 2005 the volumes of all three grades increased. The paper also concluded that the larger increases in the volume of farmed production have had a very strong impact on depressing prices. A strong seasonality in the supply of fish is also noted, with peak harvesting periods towards the end of the year before the cold winter season. The paper also noted some exports of tilapia to other African and Middle-Eastern countries but suggested that quantities were so small as not to be recorded. The paper included a number of recommendations for the marketing of farmed tilapia, including a need to better segment the market and to have different production strategies to meet the demands of different market segments and to manage prices (which are so strongly impacted by supply, and especially for larger sizes of fish), and to consider more value-addition and improved marketing infrastructure and distribution networks.

Fitzsimmons (2008) focussed in a paper presented at the 8th International Symposium on Tilapia in Aquaculture (ISTA VIII) on the fact that almost all tilapia is sold in domestic markets in Egypt. The paper suggested that Egypt, with its central location on the Mediterranean and extensive trade with the European Union and the States of the Arabian Peninsula, should be a major exporter of tilapia goods as well. The constraints to tilapia exports were listed as being: 1) Production of tilapia in sub-optimal water conditions, 2) Lack of Best Management Practices (BMPs) for production conditions, 3) Lack of sufficient Hazard Analysis at Critical Control Points (HACCP) and International Standards Organization (ISO) approved processing plants, 4) Lack of value added capabilities (freezing, breeding, packaging, etc.), 5) Lack of by-product industries.

Hebicha and Salama (2008) investigated marketing margins and elasticities of price transmission for farmed fish in the Egyptian market. Using quarterly producer and monthly wholesale retail prices for 2002 to 2006, they suggested that retail prices vary more than producer prices in relation to wholesale prices. Farmers' share in the consumer price ranged from 71.3% to 85.1%, wholesaler's share 2.8% to 3.4%, and retailers share 10.6% to 25.9%.

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Hebicha (2008) used monthly retail, wholesale and quarterly farm gate prices over the period 1998 to 2006 to examine price transmission between different actors in the value-chain. He suggested that prices were less volatile at the retail level, that retail prices had a greater impact on wholesale prices than the other way around, and that changes in wholesale prices were greater for retail price increases than for retail price decreases. In addition, analysis showed that wholesale prices took less time to adjust for retail price increases than for price decreases, but that in the long-run (after 3 months) price changes at the retail level were fully transmitted to the wholesale level. Noting the potential limitations of using quarterly farm-gate prices, the work further suggested that short-run price transmission symmetry between farm and wholesale marketing levels when prices increased, irrespective of whether farm prices determined wholesale prices or vice versa. However, price decreases at the farm level were fully transmitted to the wholesale level, but price decreases at the wholesale level were less than completely transmitted to the farm level.

In other work, Hebicha (2009) and Hebicha et al. (2009) showed that the determinants of per capita fresh fish demand in Egypt were real fresh fish price, real per capita consumption expenditures, and real price of imported fish, in that order. In addition, results indicated that an increase in the fresh fish real price by LE1/kg would result in decreasing annual per capita demand by 0.36 Kg, while an increase in the imported fish real price by the same amount would increase per capita annual demand for local fresh fish by 0.26 Kg. It should be noted however that aggregated domestic and imported fish prices were used in this analysis. Analysis of the determinants of imports suggested that the dominant determinant of fish products import demand in the short and long-run is consumption expenditure i.e. economic growth.

Norman-López and Bjørndal (2009) investigated the degree of market integration between tilapia from the three largest production regions, Asia, Africa and South and Central America, in terms of prices. They considered differences in production methods, transport costs and qualities of these regions to determine whether tilapia products from different producers can essentially be considered the “same” product. They concluded that there are three different market segments of tilapia in the USA, with segmentation by product form and no clear long-run market relationship between imports of frozen tilapia products (whole and fillets) and fresh tilapia fillets, and also that the tilapia products imported into the US market cannot be considered to be the same to the Egyptian products supplied to the market in Egypt. They also noted the increases in the global volume of traded tilapia based on low production costs within these regions, coupled with high international prices, which have made it very profitable to export tilapia. However, the quantities of tilapia exported to international markets differ between countries because of different production and transport costs, exchange rates and product qualities. They highlighted the different fortunes of China and Egypt which were the world’s first and second largest producers of farmed tilapia respectively. China’s share of global farmed tilapia exports increased from 7% to 22% over the period 2002 to 2005 and in the process it became the world largest exporter of tilapia. On the other hand, they reported that Egypt did not export tilapia at the time because of both higher production costs and food safety concerns from the EU and US which have restricted most Egyptian tilapia to local markets, despite falling prices.

Macfadyen et al (2011) completed a value-chain analysis of pond farming in Egypt and with respect to the market observed that data on fish prices show how fish prices have only risen slightly over the past 10 years, but when considered in real terms, have actually fallen. The value-chain analysis report noted that almost all fish in Egypt, and all fish from the farmed sector, are sold in fresh form (either with or without ice) or live (an increasing trend). With regards to the aquaculture sector in Egypt the analysis suggested that there is very little value-addition at all in terms of processing e.g. into fillets, and that there appears to be a strong distrust by consumers of frozen fish, and also to some extent of processed

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fish. The value-chain analysis report provides evidence for the very short time-period from harvest to final consumption by the consumer (due to the live/fresh nature of all sales), and also the very low rates of post-harvest losses (which is in contrast to many wild fisheries value-chains, where significant post harvest losses often occur in developing countries). In both the trading/wholesale and retail sub-sectors, the general lack of chill/frozen storage equipment/facilities means that all fish needs to be sold quickly, and prices are reduced by sellers to ensure that product is sold, even at a low price, rather than not being sold at all. The study also highlighted the impact of imports of low value fish species such as tilapia and pangasius from China, Vietnam and Thailand, and suggested that such imports compete directly with local farmed fish production and put downward pressure on prices of Egyptian farmed fish.

Data contained in the value-chain analysis report describe the quantity of different sized fish of different species being produced by the farming sector, and therefore entering the market. The report suggests that much of the largest size-grade of tilapia (known as 'super') is sold through the wholesale markets in Kafr el Sheikh, Behera and at Al-Obour close to Cairo, while smaller fish may by-pass these market establishments and be sold closer to the farms, where the purchasing power of the local population is weaker, and where there is thus a greater demand for smaller and cheaper fish. However over and above such observations, the study did not well explore or explain the different marketing channels, and the while some quantitative data on the costs and earnings in the fish retail sector was obtained, the sample frame in that market segment was small compared to producers and traders.

As a general conclusion, many of these studies:

- Do not present differentiated information on the demand requirements of, and supply to, different market segments (e.g. different retail segments, food service sector segments);
- Have not well understood the main determinants of fish prices and their relative importance;
- Have not included detailed investigations with buyers in businesses at the end of the farmed fish value-chain (e.g. retailers, food service sector) about a) their perceptions of supply characteristics of farmed fish, b) the demand characteristics; and
- Do not well explain regional differences in the characteristics of the market for farmed fish that might exist e.g. rural vs urban, delta vs upper Nile governorates.

It is clear that the complexities of the market for farmed fish in Egypt are not well documented or understood. In addition the characteristics of the market for farmed fish are likely to have been changing rapidly with the increases in production and the availability of farmed fish, which have taken place over the last decade. Thus work carried out even a few years ago may already be out of date.

In addition to the insights provided by the data accessed and analysed during this study (presented in Sections 2.1 and 2.2.3 above), in the following sections this report attempts to shed light on some of these complexities by describing in a little more detail the main market segments, their relative importance, and the characteristics of current and potential demand.

3 Findings from this study about the different market segments for farmed fish in Egypt

The consultations and visits completed in Cairo as part of this study suggest that there are a number of very different market segments in terms of the final sales point for farmed fish in Egypt, all of which exhibit different demand characteristics for farmed fish, and which offer different potentials for the future. Broadly speaking, the domestic market can be divided into two main categories: the retail sector; and the food service sector. Each of these two main categories have a number of specific market segments within them, and brief summary information is provided below about each of the segments. Information on exports of Egyptian tilapia has already been presented in Section 2.1.1, and the export market represents a discrete (and growing) market segment in its own right.

3.1 Retail market segments, and the characteristics of demand for farmed fish

3.1.1 Multiple supermarket retailers

There are a number of multiple supermarket retailers already operating in Egypt. These are companies which own more than one supermarket, and which sell a wide range of food and beverage items, as well as other household items. Some supermarkets are 'hypermarkets' i.e. very large stores generally located in out-of-town shopping malls, but most are located within urban/city environments. Examples of multiple retailers in Egypt include: the Mansour Group (45 Metro stores, 6 Mini Metro stores, and 35 Khier Zaman stores); Carrefour (around 5 hypermarkets and 7 smaller stores); Ragab Sons (31 stores); and Spence (3 stores).

These supermarkets tend to have a small fresh fish counter (see Photo 1) selling local wild and farmed products and some imported items (as well as selling canned and frozen packaged products in cabinets), although fresh fish counters in hypermarkets may be sizeable (see Photo 2). Typical daily sales of tilapia in each store may be very small and limited to around 10-50 kgs.

Photo 1: Fresh fish counter in Ragab Sons store in Nasr City, Cairo



Source: Macfadyen, G. Note medium sized tilapia on sale for LE 12.99/kg

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Photo 2: Fresh fish counter at Carrefour hypermarket, Maadi/Cairo



Source: Macfadyen, G. Note large 'super' sized tilapia on sale for LE 18.95/kg

Most tilapia is sold in whole fresh form, and the main size of whole tilapia demanded is around 300-350 gr, and having a range of different sizes of tilapia is generally not considered that important, although when supermarket have 'offer/promotion days' they may sell a wider range of size, and more smaller fish.

However there are some sales of relatively small fresh tilapia fillets in this market segment either on ice or packaged (see Photo 3) i.e. 100 gr fillets (produced from a whole fish of around 300 gr given an assumed processing conversion ratio of 30-35%). Supermarkets may also sell fillets of Nasser lake tilapia and Nile perch fillets.

Pricing strategies can vary quite considerably, and store visits made during this study revealed whole tilapia for sale at prices between LE13/kg and LE25/kg.

Photo 3: Fillets on sale at Carrefour hypermarket, Maadi/Cairo



Source: Macfadyen, G. Note small fillets of 100 gr each being sold for LE59/kg

The main type of customer frequenting these stores may vary depending on the area in which the stores are located, but multiple retailers generally target and service middle/higher income consumers.

A distinguishing feature of multiple retailers is that they may (but not always) have a central buying department with a dedicated fish purchasing manager, and also in some cases quality assurance staff. They may place a greater emphasis on traceability and fish hygiene and quality than other market segments, although site visits made during this study suggest that fish quality in many stores is not always that good, and may be affected by a relatively low volume of sales meaning that some fish is left on the fish counters for several days⁵.

This market segment probably accounts for a very small percentage of total purchases of farmed fish in Egypt, but is expanding very rapidly, with most major operators having expansion plans which involve considerable growth in the number of stores⁶.

3.1.2 Independent supermarket retailers

Independently owned supermarkets may sell very little farmed fresh fish, if any at all, as few have dedicated fresh fish counters. Thus fresh sales may be limited to a few species being sold in boxes, and

⁵ This problem was characteristic of supermarket sales of fresh fish in Europe and America when supermarkets first started to establish fresh fish counters and to expand the volume of their fresh fish sales, finding that their longer supply chains and lack of specialist knowledge of fish, meant a resulting lower quality product. This problem has now largely been overcome in the EU and USA with considerable improvements in the quality of fish in multiple retailers in these markets.

⁶ Egypt may therefore be at the beginning of a similar market development trajectory as exhibited in Europe and the USA, whereby multiple retail sales rose from a very small percentage of total seafood sales in the 1970s and 80s to more than 90% at the current time.

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stores tend to concentrate more on canned and frozen product. There are not thought to be any sales of fresh fillets in this market segment.

3.1.3 Specialist fish retailers

Specialist fish retailers are individuals or businesses which exclusively sell fish products. Most but not all retailers appear to be men, with perhaps around 10-15% being women. Many of them operate in specific market areas dedicated for groups of retailers. For example in Cairo there are a number of specific retail fish markets e.g. Moneab, Zaytoun and Embaba (all reportedly around the same size with around 100 retailers) and Sayeda Zaneb, Waely, Faisal and Maadi (all of which are smaller). These retailers have the use of basic use of buildings (either rented or owned) from/in front of which they conduct their sales.

Photo 4: Specialist fish retailer, Moneab retail market, Cairo



Source: Macfadyen, G.

Most retailers sell a variety of different species, including tilapia, mullet and catfish, and all sales of domestic fish (wild and farmed) are in whole fresh form.

Fish is purchased daily, either from El-Obour market, or from traders who supply product from El-Obour or Kafr El Sheikh wholesale market or direct from farms. Retailers generally look for a range of different sizes of farmed fish to cater for demand from different consumers (with lower income consumers generally preferring smaller fish), and the type of consumers they service depends strongly on the area in which they are located.

Almost all fish purchased each day is sold, with little fish held over and sold on subsequent days – independent retailers prefer instead to lower prices to ensure that all product is sold each day. Along with the use of ice and the short time from harvest to end sale, this means that even though the general quality of the retail market establishments can be very poor (see Photo 5 and Photo 6), the quality of

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the fish is generally reasonable, although improvements could certainly be made through better use of ice and improved handling and hygiene practices.

Photo 5: Moneab retail market gutter, Cairo



Source: Macfadyen, G.

Photo 6: Moneab retail market hall, Cairo



Source: Macfadyen, G.

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Within this market segment, there appears to be a distinct and rapidly growing sub-segment, concentrating on sales of live tilapia. Stakeholder consultations suggest that there are traders supplying live tilapia from Fayoum, Behera and Kafr El Sheikh to the Cairo market, and certainly compared to the situation in 2011 when the field work for the value-chain study was completed (Macfadyen et al), there appears to be a more diverse supply of live fish from different locations, and not just from Fayoum. Live tilapia retailers tend to only sell live tilapia (i.e. they don't also sell other species), and may have holding facilities for the live fish, and then separate trays/bowls for smaller quantities of live fish for viewing by customers. Operators try to keep fish alive (see Photo 7) in holding facilities by using a water pump to recycle /aerate water, and in some cases they also use commercial oxygen gas when stocking rates in the holding facilities are high. The holding facilities and selling equipment are of poor quality, and coupled with the use of mains water supply, are resulting in considerable stress to the fish and high mortality rates. Nevertheless, prices for live tilapia are generally LE2-4/kg higher than for dead whole fish of the same size, and the growth in this form of retailing indicates both that consumers are willing to pay for quality, and that value-added is being generated through sales of this nature.

Photo 7: Live tilapia holding facility, Moneab retail market, Cairo



Source: Nasr-Allah, A.

Photo 8: Live tilapia selling tray, Moneab retail market, Cairo



Source: Macfadyen, G.

3.1.4 *Street vendors of fish*

Finally within the retail sector, there is a discrete market segment of street vendors who do not operate from any fixed building/location but sell by the side of road, and typically have very few or no assets. Along with the specialist fish retailers described above, they probably represent the main sales outlet for farmed tilapia and mullet in Egypt at the present time.

This group of retailers is mostly comprised of women (although there are some men involved), and is the subject of a separate study being supported by the IEIDEAS project at the time of writing, and so was not considered in detail during this market study. However, discussions with field workers engaged with the women vendor study (Hussien, S., Pers. Comm., 2012) suggest the following key characteristics of this segment:

- For many retailers fish trade is a job of necessity not choice;
- There are no representative organisations;
- Retailers buy either from traders or from auction markets;
- All fish bought/sold is in whole fresh form;
- Retailers demand a mix of sizes of fish, but this segment is the most important outlet for sales of smaller fish to poorer consumers;
- Fish is bought daily with only very small quantities being kept overnight if unsold by those with fridges, but most retailers lower prices towards the end of the day to ensure that all the fish they have bought is sold each day;
- Some conduct de-scaling and gutting of fish for customers for a small additional charge; and
- Key problems faced by retailers relate to:
 - The transportation of fish from markets/traders to their selling location;
 - Demands for what may be 'informal' payments to officials; and
 - A lack of security over their ability to trade from specific locations.

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As with independent retailers, the fact that most of the fish purchased each day is sold the same day and is often harvested the same day or the day before, means that the quality of fish being sold is reasonable, although handling practices and the use of ice could certainly be improved so as to improve fish quality.

Photo 9: Street vendor in Abou-Hammad



Source: Nasr-Allah, A.

Photo 10: Sale of small farmed fish, Abou-Hammad



Source: Nasr-Allah, A. Note. Grade 3 (<250 gr) sorted into 2 grades, the bigger size sold at LE 10/kg and the smaller at LE 6/kg.

3.2 Food service sector segments, and the characteristics of demand for farmed fish

3.2.1 Specialist fish restaurants

Restaurants in this market segment serve customers of different income groups, but generally of middle/upper class. Stakeholder consultations suggest that the more expensive the restaurants are, the less likely they are to sell any farmed fish, instead concentrating solely on marine species. Indeed owners of top-class restaurants consulted during the study consistently stated that they would under no circumstances be encouraged to sell tilapia or mullet because selling only marine fish serves to maintain their reputation as a high class establishment serving on the 'best' fish (and presumably therefore helps to maintain high prices/margins).

However, there are many specialist fish restaurants that do sell considerable quantities of farmed species. For those that do sell tilapia and mullet, these farmed species appear to be by far the lowest-priced fish on offer, and perhaps as a result tilapia represents a very important contribution to their total volume of sales.

Some of the restaurants focussing on middle rather than high income consumers may also do take-outs, but all restaurants in this segment are characterised by having seating areas.

The general approach to selling fish in these specialist fish restaurants is to have fresh fish counters, with all fish displayed in whole form, and with customers inspecting and then selecting a fish and buying by weight. The restaurant then cooks the fish using the method chosen by the customer (e.g. grilled, fried, etc). Discussions with restaurant owners suggest that cooking options are strongly in favour of grilling, and to a lesser extent frying of whole fish, and very few customers ask for fish to be prepared as fillets (although there is some demand for preparation and cooking as fillets for children, the elderly, or those more health-conscious consumers). The small demand for fillets and the method of presentation (i.e. whole fish on view for customers) would appear to preclude any future development of a market for sales of fillets to restaurants by processors.

Those restaurants using tilapia typically want a range of sizes, but only above 250 gr, and size grades of 400-600 gr are reported to be most in demand (i.e. plate-sized fish). They are usually supplied by traders, rather than by going themselves to purchase fish from the wholesale market.

Ownership of the restaurants generally lies with individual businessmen, although some are part of small branded chains with restaurants in a number of major cities within the country.

3.2.2 Fish fry shops

This market segment is characterized by the fact that there is generally no seating area (although a bar or a few tables may be provided), and that sales are generally to lower/middle income consumers, and are of a 'take-away' nature. Typically, these fish fry shops are located close to independent fish retailers e.g. in market areas, and customers first purchase fish from a retailer (sometimes then paying someone else to gut/clean the fish), before providing it to the fish fry shop for cooking. They are thus providers of a cooking service, rather than buyers of fish themselves. As with the specialist fish restaurants customers can then chose the cooking method preferred, and there is reported to be a strong preference for grilled whole fish (and virtually no demand for fillets).

In some cases however, this segment may not be discrete from the independent fish retail segment, with businesses buying and then retailing fish, but also providing cooking services for customers that want it. It may also be the case that some fish fry shops not engaged with retailing also make their own

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purchases of tilapia, rather than just cooking for consumers who have already bought fish from a retailer.

Farmed tilapia is an important product for many of these businesses (along with relatively cheap frozen imported items), and as with specialist fish restaurants, demand is typically for fish of over 350-400 gr.

Photo 11: Fish fry shop, Moneab retail market, Cairo



Source: Macfadyen, G.

3.2.3 Tourist hotels/restaurants

Tourist hotels display very different demand characteristics to the food service segments described above. Most notably the demand in this segment is typically for fillets and not for whole fish (although there may be some limited demand for whole fish in Mediterranean-type restaurants). Fillet size requirements are generally in the range of at least 200-250 gr (i.e. requiring fillets from whole fish of around 600-750 gr). At the present time there are no sales of farmed tilapia fillets into this market segment in Egypt because of the lack of processing, although there is some use of imported frozen fillets of pangasius (fillet prices on offer by suppliers to hotel restaurants at the time of the study were as low as LE 14-20/kg for fillets of 2-4 pieces/kg i.e. 250-500 gr fillets), and also of Nasser fillets (LE 45-60/kg).

This market segment can usefully be divided into two main sub-segments. The first are the cheaper package-type hotels providing all-inclusive package holidays, many of them located in coastal areas of the country. These types of hotels are very price sensitive in terms of their purchases of supplies, and may have a daily food budget per guest of as little as \$10/day for three meals. There is probably little opportunity for sales of tilapia fillets to this segment given pricing issues and competition from imported fish.

The second sub-segment is the more expensive large tourist hotels in Cairo and elsewhere. These hotels are also likely to place considerable cost controls on purchases, but obviously purchase much higher quality and more expensive food items. This sub-segment is more likely to appreciate (and to pay for) the difference between fresh high quality locally-produced tilapia fillets, and cheaper frozen imported fillets.

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The segment as a whole is characterized by having dedicated purchasing departments, and by Executive Chefs being integrally involved in all purchasing decisions. In the case of some hotels/restaurants, group ownership may mean that there are central purchasing departments dealing with purchases on behalf of all hotels in the group⁷. In all cases however, purchasing departments play a critical role in vetting and approving 'recognised' suppliers. This clearly has implications for any efforts to expand sales of farmed tilapia into this segment.

Also of special importance for this segment, and relevant to any promotional work to support market penetration of tilapia, is continuity of supply of product over a short-time period, and consistency in the size of fillets. This is because chefs need to know that once a menu is being offered and has been printed, they are sure to be able to obtain the supplies of fish needed, and that all servings are standardized.

One other potentially important point is worth making about this segment. Large hotels of this type typically have a staff to guest ratio of at least one. This means that many hotels may employ several hundred staff, who also need to be fed by the hotel kitchens. There may be an opportunity therefore to link market promotion for sales of fillets for guests, with the sale of whole fish for hotel staff.

3.2.4 *Event caterers*

This market segment was not consulted during the market study due to time limitations, so associated comments are necessarily speculative. However it would appear likely that there is little or no current demand for locally produced tilapia, as event caterers are assumed to provide for high-income consumers, and can be expected to demand either white-fish fillets (for the same reasons as hotel restaurants) or whole marine fish (for the same reasons as specialist fish restaurants i.e. the consumer perception that the 'best' fish is marine fish).

Some hotel restaurant kitchens are known to provide catering services, so any potential for market penetration that does exist could also be realized through market promotion work done with the hotel/restaurant segment. Further work is required to better understand this segment and whether there is any potential for increased sales of either whole or filleted fish.

3.2.5 *Airline catering*

Again, it was not possible due to time limitation to meet with airline catering companies during this study. It is suspected that such companies, like the hotels providing package deals, are extremely price sensitive with set (and small) budgets provided per meal. There is likely to be strong competition for tilapia with imported frozen fillets, primarily of pangasius. However, this segment should not be ruled out as offering no potential for sales of domestically farmed fish, and further investigations are necessary.

Such investigations should be fairly easy to conclude, given the presence of one or two large catering companies supplying a large number of different airlines. For example Egyptair In-Flight Services Company (www.egyptair-ifs.com) provides Egyptair and 18 other international airlines at Cairo International Airport with food production and in-flight services. Likewise, AMCAirlines

⁷ For example the Hilton Group is comprised of around 20 hotels, and has a centralised electronic purchasing/ordering system, whereby chefs in individual Hilton hotels can access a database to view prices of products being offered by different suppliers, place an order, which is then made by the central purchasing department.

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(www.amcairlines.com) and Lufthansa both also provide airline catering services to a number of different airlines.

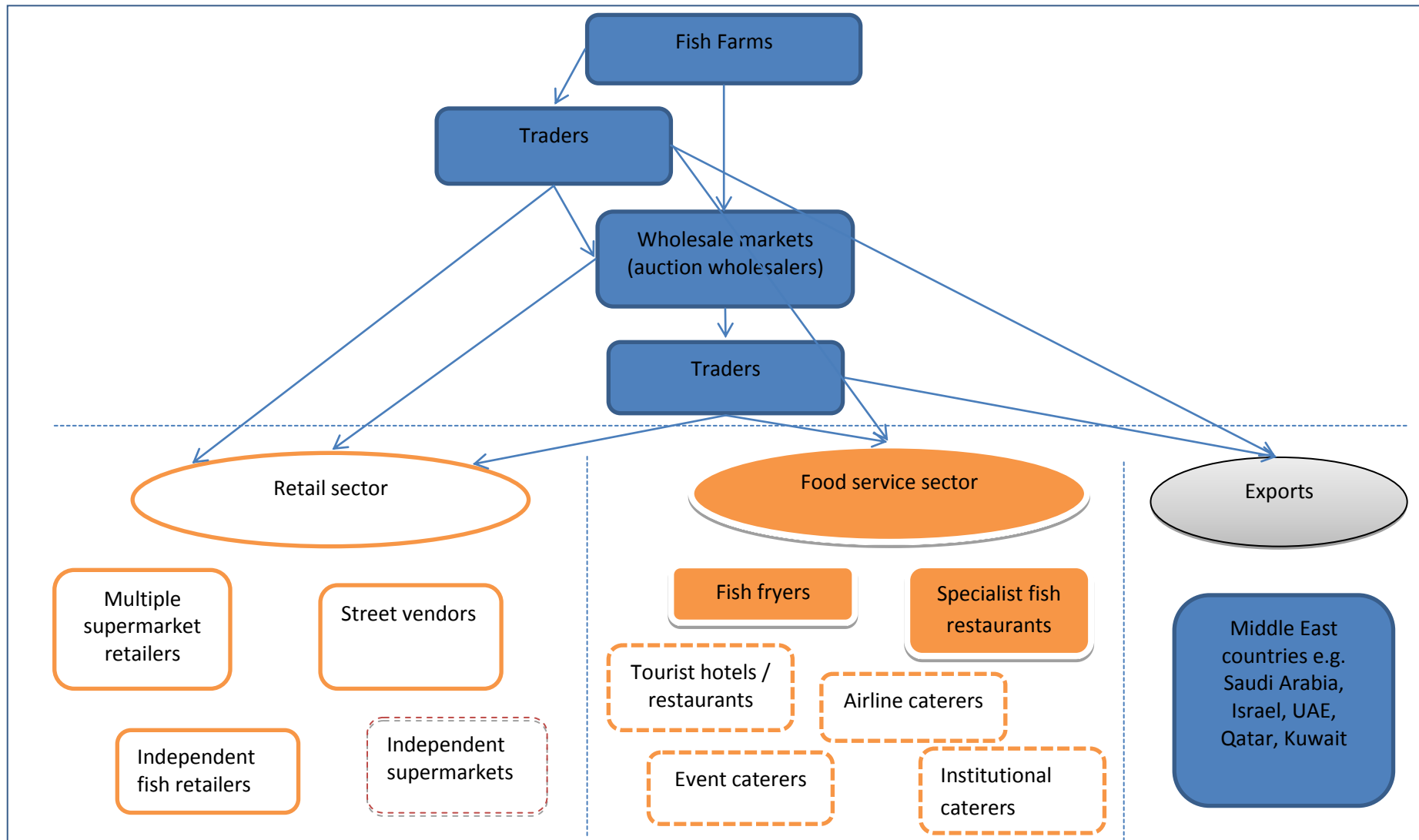
3.2.6 Institutional caterers

There is one final market segment within the food service sector, worthy of consideration. This is the segment providing catering services to big institutions such as hospital canteens, the army, and schools. Again this segment was not well investigated during this study, but is thought not to utilize any farmed tilapia (or indeed much fish at all). Again, this is a segment which could benefit from additional research on both current and future potential demand for tilapia and mullet. Sales of fish for consumption by the army may offer particular potential for development in the future.

3.3 Summary of product flows to different market segments

The Figure overleaf (Figure 7) provides a summary of the flow of product from fish farms in Egypt to the different market segments. It demonstrates the complexity of the trading networks and possibilities, as well as the multiple market segments involved in the supply chain before product reaches the final consumer.

Figure 7: Flow of farmed fish to different market segments



Source: Authors. Dotted lines around market segments indicate that there are not thought to be any sales of farmed fish to these segments at the present time

4 Conclusions, implications, and related recommendations

4.1 Conclusions

All of the discussion presented above supports some general conclusions about the current market for tilapia (and mullet) in Egypt, the potential for market developments, and the need for market promotion.

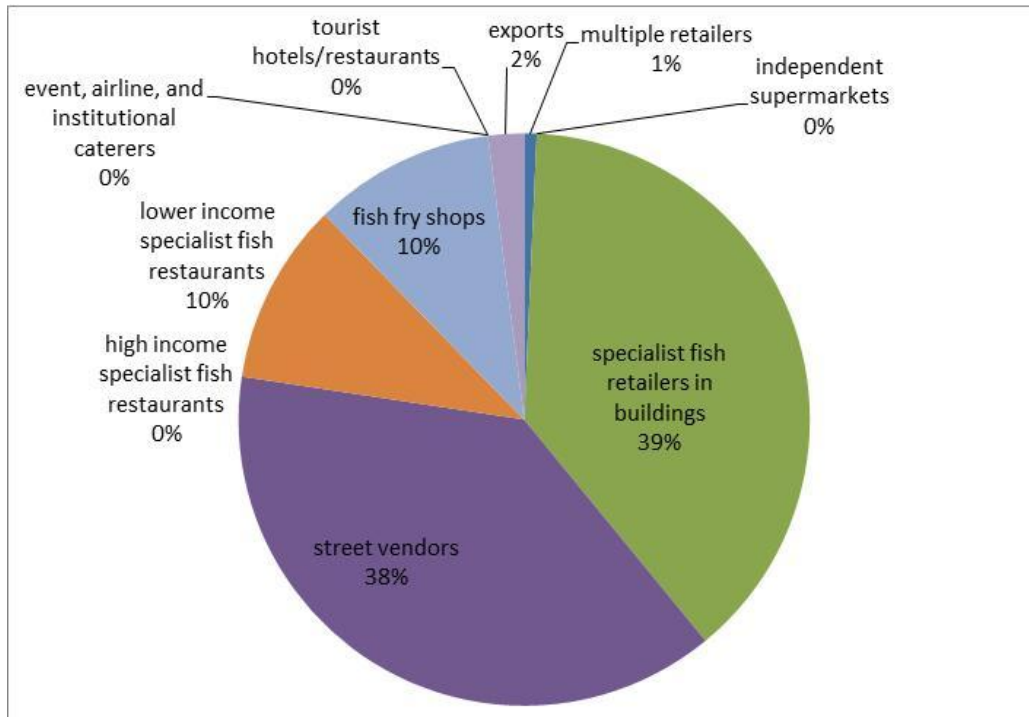
4.1.1 Conclusions about the current market

1. The overwhelming impression of the current market for farmed fish in Egypt is that product is being sold as a low-value bulk commodity product with virtually no value-addition. This situation has resulted from a strong focus on increasing production over the last decade, and the lack of any specific market-related promotion work. The result has been a decline in real prices for farmed fish, and coupled with rises in production costs in recent years, is placing increasing pressure on the profitability of the farming sector. With increases in production still planned and predicted for the coming years, a crash (or least a stagnation) in farm production, income and employment could be around the corner, as farms find that their profitability is eroded. Whether, and how fast, production in the farming sector might stagnate or crash due to declining profitability is difficult to predict, and will depend on a large range of factors such as changes in farm input costs and market prices, the impacts of the selective breeding programme on both farm profitability and production levels, the general economic climate in the country, growth in demand for fish, etc. A viable aquaculture sector in the country (and the income and employment benefits it generates) is not just dependent on the technical feasibility of increasing production, but also on the marketing of product so that profits can be made by those in the value-chain. Lessons from fish farming sectors in other countries e.g. salmon in Scotland/Norway, bass and bream in Greece, show that increases in production inevitably lead to declines in prices, thereby requiring a more vigorous focus on marketing so as to maintain/revive profitability. It is desirable that Egypt learns from these lessons and starts to work on a marketing strategy now, rather than repeating the mistakes of others, and only doing so when the sector is in crisis in a few years' time.
2. The current market for farmed fish in Egypt is not at all well understood, particularly in terms of the presence, size and demand requirements of different market segments. There is also no understanding of the relative margins and value-added in the different market segments. This study has provided a little more information than was previous available/documented on the market segments themselves and their demand characteristics, and it is clear that there are a number of discrete market segments, but the information in this report needs to be further substantiated and elaborated. It appears that at the present time by far the largest market segments are the independent fish retailers and the street vendors. In the food service sector there are also some smaller volumes of sales through specialist fish restaurants and fish fry shops. It is of particular interest that there are several market segments which currently sell only small amounts of farmed fish or none at all. A very generalized schematic of current market shares is provided in the figure below (Figure 8) based on the consultations completed as part of this study, but is not empirically generated and should be treated with caution. In particular, given their relatively large contributions to the total market, the relative shares of the market held by the two main segments (independent fish retailers and the street vendors) needs to be further investigated.

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- It is also likely that the relative shares of the market differ in different areas of the country i.e. with fewer multiple retail sales and more street vendor sales in rural areas. There are also likely to be important shifts in demand and prices based on seasonal patterns, for example the large migrations of people to the coast in summer/vacation months, and the impact of religious holidays (Ramadan, Easter, and Christian fasting before Christmas).

Figure 8: Possible market shares of the principle market segments for farmed fish in Egypt



Source: Authors' estimations. Note not empirically proven or generated

- Given the large volumes of farmed fish in Egypt (compared to marine fish, and imported fish), prices for farmed tilapia seem most strongly determined by the volume (on both a daily and monthly basis) of farmed supplies, with the often-quoted impacts on prices of fish imports (pangasius and tilapia), chicken and other factors being strongly overstated. It may well be the case also that the price for the largest grade of tilapia has a strong bearing on prices of smaller grades (along with the volumes of supply of smaller grades), as the relationship between prices for the three grades appears fairly constant throughout the year even though the mix of size grades in the volume of sales changes. This is important over the course of the year, as while a strong increasing trend in total sales volumes of tilapia through the year does not seem to be the case as is conventional wisdom, it appears that as the year progresses the relative contribution of larger fish to total supplies increases. While daily mullet prices also seem to be strongly impacted by the volume of mullet supply on a daily basis, over the course of the year monthly volumes and average sales prices show that mullet prices are rather independent of sales volumes. This may be because sales volumes are relatively small, but given the relatively high prices compared to tilapia, nevertheless suggests that increasing volumes of mullet within the species mix at the farm level could have a significant impact on overall farm profitability.
- While grading by size is standard practice within the industry, handling practices and cold-chain management throughout the distribution chain are generally very poor, and marketing

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infrastructure (e.g. wholesale and retail markets) is generally of very poor quality. There is also an almost complete lack of traceability within the value-chain. The short time to market, and the daily sale of most fish, are to some extent mitigating these deficiencies because even with poor handling practices the quality of fish in terms of freshness is often reasonable (although this study has not undertaken any micro-biological testing of fish for bacterial counts, etc). However in the longer term, it is certainly desirable that quality and hygiene improvements are made in the post-harvest marketing and distribution system.

4.1.2 *Conclusions about the future market and its potential*

1. A clear and well-coordinated market strategy for the sale of farmed fish in Egypt is essential. This is likely to require better sector organisation (highlighting the need for stronger producer organisations) and agreed marketing strategies by those in the value chain.
2. Current trends in the market are clearly important for understanding future market potential, and there are some important trends taking place in Egypt at the present time. These include:
 - An increase in the share of the food and beverage market by the multiple retailers, although their market share is still very small;
 - An increase in the export of tilapia to Middle Eastern countries; and
 - An increasing trend towards the sale of live tilapia in the retail sector. This trend strongly suggests that consumers are willing to pay for good quality fish.
3. Increases in overall production levels are likely on their own to ensure that affordable fish remains available to low income consumers. However predicted increases in production are also sufficient to ensure that at the same time market penetration can be achieved in some market segments that currently buy/sell little or no farmed product. Indeed such penetration, and the additional value-added that would result, is likely to be critical in ensuring continued farm profitability. It is thus important that a market segmentation strategy (and related promotion – see below) fulfils the particular demand characteristics of different market segments, through different product and pricing strategies for different market segments. This would serve to ensure that multiple objectives for the sector as a whole can be met i.e.:
 - Increased production (to grow the overall market);
 - Generation of further employment, especially for women;
 - Food and nutrition security (through the provision of cheaper smaller whole fish to the poor);
 - Increased employment and value-addition through the value-chain (through the sale of value-added fillet products to specific market segments);
 - Farm profitability; and
 - Generation of foreign exchange (through exports).
4. It is likely given current trends and potential demand for tilapia that has so far not been realised, that the multiple retail segment and the hotel/restaurant market segment, offer two marketing avenues of particular interest. The multiple retail sector is rapidly growing, and shows potential demand not just for whole tilapia, but also for fillets. Likewise, the hotel/restaurant sector demands fillets, but is not currently being supplied with any farmed tilapia. Increasing sales of fillets would greatly help to generate female employment in the processing sector, while also supporting increased levels of value-added. The event and airline catering segments, along with sales to the military, could also offer similar marketing opportunities for the future.

The market for Egyptian farmed fish

5. The sale of live fish is also an interesting trend, and one which probably offers continued scope for expansion, with the associated increases in value-added.
6. The situation with regards to exports is far from clear. The growth in exports in recent years may be something that could, and should, be further supported. However doing so would require a much better understanding of:
 - Current profits being made from exports;
 - The extent to which this trend is driven by poor prices in the domestic market, and therefore whether with better marketing in Egypt in the future such exports might not be necessary or so advantageous;
 - Whether whole fresh tilapia in Middle Eastern markets represents a different market product to frozen tilapia and pangasius fillets and other competitor products, and is therefore something of a niche market;
 - Relative production costs of competitor products in the Middle East market, and the relative logistical and freight costs associated with transportation by Egyptian and other exporters to Gulf countries;
 - What the impacts will be on international prices of tilapia as China increasingly produces for its own domestic market, and of pangasius as profitability in the Vietnamese farming sector continues to be squeezed; and
 - The export value-chain, associated export risks, and the requirements of export markets.
 - What would be the most effective means of further supporting exports.
7. A summary of the current demand characteristics of the different market segments, and the potential for future value-adding and employment creations is provided in Table 7 below. The table suggests three priority segments (**in green bold**) based on their importance for food and nutrition security and the potential to add value and create new employment, along with a number of segments considered of secondary priority (*orange italic*) which could also offer potential for the future.

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Table 7: Summary table of market segment demand characteristics and potential for more value-added and employment

	Product form (current and potential)	Customer type	Current gross added value	Importance for food and nutrition security	Potential for more added value/employment and greater share of market
Retail sector					
Multiple retailers	Whole/fillets	High/ middle class	Medium	Low	Yes (through greater sales and more fillets)
Street vendors	Whole	Lower class	Low	High	No (but already important for female employment)
<i>Specialist fish retailers within buildings</i>	<i>Whole</i>	<i>Depends on location</i>	<i>Low</i>	<i>Medium</i>	<i>Some if more live fish sales</i>
Independent supermarkets	Whole (if any at all)	High/ middle class	Low	Low	No
Food service sector					
High class tourist hotels/restaurants	Fillets (potential, none at present)	High/ middle class	n/a	Low	Yes (through increase in sales of fillets)
<i>Event caterers</i>	<i>Fillets (potential?, none at present)</i>	<i>High/ middle class</i>	<i>n/a</i>	<i>Low</i>	<i>Unclear but worth considering</i>
<i>Airline caterers</i>	<i>Fillets (potential?, none at present)</i>	<i>High/ middle class</i>	<i>n/a</i>	<i>Low</i>	<i>Unclear but worth considering</i>
<i>All-inclusive tourist hotels/restaurants</i>	<i>n/a</i>	<i>High/ middle class</i>	<i>n/a</i>	<i>Low</i>	<i>Unclear but worth considering</i>
<i>Institutional caterers</i>	<i>n/a</i>	<i>All</i>	<i>n/a</i>	<i>Low</i>	<i>Unclear but worth considering</i>
Specialist fish restaurants	Whole	High/ middle class	Medium	Low	No
Fish fryers	Whole	Middle/ lower class	Low/medium	Low	No
Exports					
<i>Exports (mainly Saudi, Israel, Kuwait, UAE, and Qatar)</i>	<i>Whole</i>	<i>High/ middle class</i>	<i>Medium?</i>	<i>Low</i>	<i>Possible but may not be necessary if better domestic marketing, but could offer niche marketing opportunity</i>

Notes: 1/ added value in all segments could be increased with general shift in consumer perception about farmed fish and stronger demand leading to higher prices. 2/ gross value-added is a reflection sales price, but net levels of value-added after costs are not known for the different segments. 3/ Green bold = priority sector for increasing market share and value-added, orange italic = secondary priority, normal text = little potential for increased market share and value-added

4.1.3 Market promotion

The above conclusions suggest the need for the use of a number of different market promotion strategies. Critically important in the specification of any future marketing strategy would be the selection of appropriate types of promotion tools for the development of specific market segments.

A wide range of market promotion tools are available and could be used, including:

- Generic advertising and marketing campaigns using mass media e.g. radio, television, billboards, newspapers etc to influence demand (and therefore price) through changing consumer perceptions about the quality of fish, and/or the health benefits of eating fish;
- Engagement with journalists/editors to place more 'educational' editorials or articles in newspapers and magazines;
- The use of television chefs to influence consumer demand (and therefore price);
- Price promotions for specific periods to support sales into new market segments;
- Use of recipe cards and in-store demonstrations/promotions in retail sector businesses
- Production of new products e.g. fillets, to service the requirements of particular market segments;
- Improved packaging and labelling;
- Branding and 'naming of product';
- Improvements in quality and traceability; and
- Representation at trade fairs to support export promotion.

This study has not been able to consider the suitability of any specific promotion methods in any detail, and further work on the effectiveness (impacts) and efficiency (value-for-money) would be required to assess their suitability to the Egyptian context. It would also be sensible to conduct small-scale trials and piloting of any specific promotion methods before scaling them up for wider application.

As evident from the list above, some of these tools may serve generic market promotion i.e. to generally increase demand for farmed fish across all market segments, through changing consumer perceptions. For example, consumers in Egypt generally have a low opinion of farmed fish produced in the country based primarily on concerns over the quality of the water in which fish is farmed, but possibly also by differences in taste between freshwater and marine fish. Tests done on farmed fish by Makro suggest however that there are no problems in relation to contaminants in fish from heavy metals, dioxins or dioxin-like polychlorinated biphenyls (PCBs), etc. (El-Sherif, Pers. Comm., 2012). Thus generic advertising and market promotion could address these consumer mis-conceptions, helping to increase demand and prices.

Other forms of promotion are more specific to particular sectors. As noted above, multiple retailers and hotel/restaurants are suggested as offering special potential for market expansion in Egypt. In both segments it would be critical for producers, suppliers, and processors to work closely together with buyers/purchasing departments/chefs to ensure careful planning in terms of timing, and potentially of the phasing of market growth so that production (and processing of fillets) coincided with market development and promotion efforts. In both segments it would also be critical to ensure continuity of supply and maintenance of high-quality product (in this regard market promotion could focus also on the competitive advantage that farmed fish has over wild caught product, in terms of being able to harvest product when it is needed, and the potentially very short time period to market/sale).

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With respect to market promotion in the hotel/restaurant segment, the Egyptian Chefs' Association (ECA) could be a particularly important stakeholder. This organisation could play an important link between suppliers and chefs/buyers, and provide good and quick access to a large number of chefs. Specific promotional activities for tilapia which the ECA could support might include:

- Providing fish to chefs for them to try;
- Seminars with tilapia recipes in the ECA central kitchen;
- A specific tilapia competition with live cooking at the national yearly exhibition 'HACE';
- Tilapia competitions in 'national salons', when dishes are pre-prepared and displayed before being judged;
- Articles in the Chef's Corner magazine;
- Information published on the ECA website; and
- Modification of their Fish and Seafood training manual (tilapia is already included) and use of tilapia in their training programmes.

4.2 Implications for the IEIDEAS project

As a cross-cutting initiative of potential relevance to all of the five IEIDEAS outcomes, one of the overall objectives of this study was to consider any implications an improved understanding of the market might have for the project as a whole. These implications fall into two main categories, which are discussed below: the project's activities; and the project's current indicators as specified in the logframe.

4.2.1 Project activities

It is clear from the discussion above that there is potentially a very wide range of activities that need to be completed to improve the marketing of farmed fish produced in Egypt, and far too many activities for the IEIDEAS project to take on alone. It is therefore suggested that the project may wish to:

1. Try to engender some awareness more broadly within Egyptian stakeholders for the need to address marketing issues, so as to avert a potential crisis in profitability in the farming sector in the coming years. This might be achieved through support for market policy workshops, and for education of producer organisations about the importance of marketing, and related policies, in other countries.
2. Support additional research on a number of issues highlighted in this report as being of potential importance, and about which current knowledge is limited:
 - An understanding of value-added and employment creation from sales of farmed product in different market segments;
 - An improved understanding of the relative importance of present and future different market segments;
 - Ways to assist live fish traders with better facilities/equipment;
 - The potential benefits of, and acceptability to stakeholders of contract sales as a way to introduce some certainty into the market and reduce variability in prices;
 - Determinants of prices based on econometric analysis of daily and monthly sales data on volume and prices at El-Obour market;
 - The extent to which the Obour sales volumes data and the monthly/seasonal patterns in that data, also reflect harvesting volumes; and
 - Desirability of supporting the trend in tilapia exports and the best ways of doing so.

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3. Ensure a sufficient focus in its ongoing work on Best Management Practices (BMPs) on marketing/handling/quality issues, and to expand its proposed training activities so as to include not just farmers but also traders.
4. Engage with other potential government, private sector, and bilateral/multinational donor agencies to consider which organisations are best placed to engage with, and support, the many activities that could be undertaken to improve the marketing of fish. The starting point for this could be a national-level workshop to facilitate, develop, and document an agreed stakeholder marketing strategy for the sector, with detailed activities (costed and with timeframes specified and responsibilities assigned) to cover necessary activities such as:
 - Necessary research (if the items under number 2 above are not to be supported by the IEIDEAS project);
 - Improvements in marketing infrastructure;
 - Improvements in quality and hygiene/handling throughout the supply chain;
 - Facilitation of organisational representation (e.g. producer organisations), sector linkages and working relationships/mechanisms for specific marketing strategies and promotion activities;
 - Establishment of high quality fish processing/filleting facilities for tilapia;
 - Testing the effectiveness and efficiency of potential market promotion tools; and
 - Completing marketing strategies and promotional efforts.

4.2.2 Project indicators

It is believed that there will be an opportunity later during the year for the project to examine and revise the project logframe and related indicators. The following observations are therefore made for consideration by those engaged with that process when it takes place.

Outcome 1 has no indicators specifically related to marketing, but focuses on profitability, job creation and increases in production in the farming sector. However, as highlighted above, profitability will not necessarily be supported through increases in production alone if final sales prices continue to decline in real terms and production costs continue to rise (even allowing for increased growth rates made possible by the provision of selectively bred tilapia by the project to multiplication centers and hatcheries). Overall profitability may therefore be strongly dependent on increased levels of production for specific market segments which demand, and can pay for, higher quality and value-added products with associated higher final sales prices.

If the project is to support value-addition through processing, this should create new employment in processing. There is currently no indicator for women involved in processing. Such an indicator could link to a proposed new indicator (see below) on the volume of fillet sales, as women could be expected to be a direct beneficiary of increases in processing and sales of fillets. Indeed if the project is to support filleting and value-addition, efforts should be made to ensure that women are the main beneficiaries of the resulting jobs that are created.

The project logframe could therefore include indicators for Outcome 1 to reflect:

- Increases in the volume of sales to both multiple retailers and high quality tourist hotels/restaurants (as these two market segments offer the most potential for increasing value through the value-chain)
- Increases in the volume of total sales that are fillets (as this would help to increase value-added, and is linked to indicator above as hotels in particular are likely to demand fillets)
- Increases of women involved with filleting.

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Outcome 2 has one indicator directly related to the marketing of fish (900 jobs created/retained for women (Baseline: 6,293)

It is not clear on what basis the baseline figure of 6,293 is derived using the 2011 value-chain study (Macfadyen et al). The 2011 study was based on a very small sample frame of female traders, and it is likely that the baseline figure in the logframe should be amended to reflect the findings of the ongoing study being completed by CARE on women retailers.

The indicator itself is also not well specified in terms of whether female jobs are to be retained or created. It may be that even with increases in farm-level production, the project will seek not to increase the number of women involved in street trading, but rather to improve their earnings and working conditions. It is therefore suggested that this indicator should be examined again in more detail and revised accordingly.

Outcome 5 is specifically focused on the nutritional health of low income consumers, and has three indicators:

- 900,000 tonnes of fish produced for domestic markets (Baseline: 720,000 tonnes, 2010 estimate)
- Cost of fish \leq price (Baseline: LE 9.98/ kg)
- Per capita fish consumption in kg stable or above 2010 levels Baseline: 15.8 kg per capita (est.)

All these three indicators are related to marketing in terms of the availability and price of fish on the market for poor consumers. However if the project is trying to ensure that cheap fish is available for the poor, the second indicator for the price of fish would be better if it were specifically related to the price of fish in low income markets e.g. street vendors selling smaller fish (leaving the project to try to increase prices in other market segments so as to support profitability (in support of Outcome 1). This would recognize the different market segments described in this report rather than treating the market as one homogenous entity, and would remove the potential lack of coherence between the current indicator on reduced/maintained fish prices and the indicator related to increased profitability in Outcome 1. It would also introduce more specificity into the indicator in terms of the price for a specific size of fish on the market.

In addition, the market analysis completed during this study has shown that prices fluctuate very considerably, based largely on supply volumes. The indicator needs therefore to be more specific in terms of the reference period (e.g. average price for a particular month or series of months) and the source of the price information (e.g. El-Obour). It should also recognize the impact of inflation over the project period, with the price adjusted based on a retail price index.

The figure in the third indicator of 15.8 kg is based on national assumed per capita supplies based on total fish production in the country and the population level. It is not specifically related to the farmed fish sector, and it is not sensible or appropriate for the project to have an indicator related to something it is not trying to influence (e.g. marine or wild freshwater fisheries). If there is to be any indicator related to per capita fish consumption, it should be related only to farmed production, and should be coherent with the indicator of 900,000 tonnes of farmed fish produced for domestic markets i.e. 900,000 tonnes divided by the national assumed population on project completion based on population projections.

For the reasons stated above, it is suggested that the logframe is altered so that:

- The indicator for the cost of fish is only related to tilapia grade 3 (100-250 gr), is the average price of fish over an agreed period, and allows for inflation over the project period; and

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- The indicator on fish capita consumption should be removed, or constructed based on the 900,000 of farmed production divided by the expected population at the time of the project's completion.

Appendix 1: References

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Appendix 2: Study schedule

Date	Activity
23 rd - 24 th May	Home office work – review of background reports/materials, and initial work on market questions/questionnaires and visit planning
25 th	International travel Geneva to Cairo Meeting with IEIDEAS project team leader
Sat 26 th	Kick-off meeting with IEIDEAS team leader to discuss logistics, sample frames, interview schedule, etc Meeting with Susan Nour to discuss appropriate support for CARE work
Sun 27 th	Review of literature and preparation of study questions/ questionnaires Meeting arrangements
Mon 28 th	Meetings with wholesale traders at El-Obour market Meeting with El-Obour market management Meeting with Ramses Hilton executive chef
Tues 29 th	Travel to Abassa Focus group meeting with 11 farmers (2 of whom are also traders) Focus group meeting with 4 traders
Wed 30 th	Participation in IEIDEAS project management committee meeting and briefing of marketing work Review of available literature on marketing of farmed fish in Egypt Travel to Cairo
Thurs 31 st	Meeting with Makro (B2B wholesaler) in Al Salam Meeting planning and arrangements
Fri 1 st June	Review of international market reports on tilapia Visits to various fish restaurants in Cairo
Sat 2 nd	Visit to Moneab/Giza fish market Office-based analysis and writing
Sun 3 rd	Meeting with CARE Meeting with Egyptian Chefs Association Meeting with Ragab Sons (multiple retailer)
Mon 4 th	Visit to El-Obour market Meeting with Hilton residence (hotel) Working session with project team leader on logframe indicators Meeting with Metro (multiple retailer) Visits to Carrefour and Metro stores (multiple retailer) Meeting with CAPMAS (statistical office)
Tues 5 th	Analysis and preparation for workshop on 7th
Wed 6 th	Analysis and preparation for workshop on 7th
Thurs 7 th	Workshop/brainstorming with WorldFish Center, Care and SDC staff to discuss findings of the market study
Fri 8 th	International travel Cairo to Geneva
11 th to 15 th June	Report writing

Appendix 3: Persons met and contact details

Name	Position/Organisation	Contact details
Susan Nour Samir Sedky Samy Hussien	CARE (NGO) and project partner	010 9777 2401 / Snour@egypt.care.org Ssedky@egypt.care.org samyhussien1@yahoo.com
Benjamin Frey	Deputy Head of Swiss Programme Office, SDC	Benjamin.frey@cdc.net
Iman Radwan	SDC	iman.radwan@cdc.net
Mr. Mohammed	Eltony Fish (El-Obour market trader selling to restaurants, selling very little farmed fish)	n/a
Mr. Hussein El-Sebay	Chairman, El-Obour market	447 70153/2
Mr. Maan Abdullah (Abou-Ahmed)	Owner, New Samco (El-Obour market trader specialising in farmed fish)	02 267 10562 01227440778 New.samco@yahoo.com
Dimitrios Koutsonikolas	Executive Chef, Ramses Hilton (hotel)	0100 600 0713 Dimitrios.koutsonikolas@hilton.com
Sally El Sherif Bassem Abdallah Mostafa Al-Wakeel	MAKRO Cash and Carry (multiple retailer) Head of Quality Assurance Fish category manager QA manager, Al Salam store	011 1777 0615 / Sally.elsherif@makro.com.eg 0111 777 0609 011 1113 5128
Mr. Ahmed	Manager, Samakmak (fish restaurant)	n/a
Ayman Wagih	General Manager, Kadoura (fish restaurant)	010 616 2258
Hany Salem	General Manager, Flying Fish restaurant (fish restaurant)	010 146 1327
Ezz Ibrahim	Manager, Seagull (fish restaurant)	02 374 94244
Mohmoud Hamed	Manager, Seafood market, Nile City Boat (fish restaurant)	012 8164 3020
n/a	Wadi Nile (fish fry shop)	
Mr. Mamdouh Mohamed Alla Abdul Baset Ahmed Gamal	Moneab market retail traders	01140555040 01140750740 01118360363
Mr. Mohamed Saned	Nile live fish salesman	01226255310
Mr. Khalid	ElHorany seafood (fish fry shop)	011 455 4499
Khaled abd Elghany Adbul Aziz	Ragab Sons (multiple retailer) Fish buyer Fresh food purchasing manager	0111 7074485 0122 3562054
Mr. Ashraf Gamal	Director of Operations, Egyptian Chefs Association	02 3762 2116 0100 730 3839 ashrafgamal@egyptchefs.com

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Sameh Atef Moustapha Ali Mostafa	Metro (multiple retailer) Deputy quality assurance manager Quality assurance manager	0122 0005569 / samehatef1981@hotmail.com 012 000 55 59 / mostafa.ali@mansourgroup.com
Said Ally	Executive Chef, Hilton Zamalek (hotel residence)	0100 2614078

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Appendix 4: Fish import and export companies in Egypt

No	Company Name
1	Abo El Fotouh For Trading & Agency
2	Al Magd for Imports&Exports
3	Al-Khwaga Com
4	Al Masriah
5	Amoag Elkhair for export & import
6	Alsada Co.
7	Alsafwa Company For Commerce & Distribution
8	Andalossia Company For Import and Export
9	Aquamarine Fisheries
10	Badr Co. For Food Industries
11	Delta for fish and food products
12	Elapassy for Import and Export
13	Egyptian Fisheries Co. For Fishing & Fish Gears
14	El Capten Packing & Frozing Fish (import & Export)
15	El Capten Packing & Frozing Fish (import & Export)
16	ElMagd for Marketing of Real Estate
17	Elmar For External Trading (basem Zayan & Co)
18	El-Nasser Star Company for Seafood Importing
19	Fiexco For Import Export & Trading Agencies
20	Golden Fish Import & Export
21	Hurghada For Import & Export
22	International Company for General Trade
23	International Stars Co. For Import & Export
24	Mostafa Alian Export
25	Mr Sea
26	National Office for Business Administration (NOBA)
27	New Al Gihad Co.
28	New Samco Trading for Fish Import & Export
29	Nile for E-Commerce & Marketing
30	Nillevalley Trading Group
31	Noranco
32	PORT SAID FACTORY FOR EXPOTING FISH.
33	Ramco Trade
34	Red Sea Export
35	Red Sea World
36	Sala Co. For Import & Export
37	Seafood Importers Group

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38	Seatrade Egypt
39	The United Company for Import & Export