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AGRICULTURAL POLICY REFORM PROGRAM**

**MVE UNIT  
APRP**

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**CHANGES IN THE  
STRUCTURE,  
CONDUCT AND  
PERFORMANCE OF  
THE WHEAT  
SUBSECTOR IN  
EGYPT SINCE 1997**



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## TABLE OF CONTENTS

LIST OF TABLES .....	iii
LIST OF FIGURES .....	iii
LIST OF ANNEX TABLES .....	iii
LIST OF ACRONYMS .....	iv
ACKNOWLEDGMENTS .....	v
EXECUTIVE SUMMARY .....	vi
1. INTRODUCTION .....	1
1.1 Tranche I .....	1
1.2 Tranche II .....	2
1.3 Tranche III .....	2
1.4 Tranche IV .....	2
2. STRUCTURE OF WHEAT SUBSECTOR .....	3
2.1 82-percent Flour .....	3
2.2 72-percent Flour .....	6
2.3 The Rural Market .....	6
2.4 Changes in Structure Since 1997 .....	7
2.4.1 The Conversion of 82-percent Flour Mills from Stone to Cylinder .....	7
2.4.2 The Introduction of a Wheat-Maize Mix for Subsidized Flour .....	8
2.4.3 Increased Production Capacity for 72-percent Flour in the Private Sector .....	11
2.4.4 The Institutional Framework of Public Milling Companies .....	12
2.5 Impact of the APRP Benchmarks .....	13
2.6 Conclusion .....	15
3. CONDUCT OF WHEAT MILLING AND TRADE .....	16
3.1 Public Sector Firms .....	16
3.1.1 GASC .....	16
3.1.2 Public Sector Mills .....	17
3.1.3 Baladi Bread Bakeries and Subsidized Flour Warehouses .....	20
3.2 Private Sector Industrial Mills .....	20
3.3 Rural Producers and Millers .....	21
3.4 The Impact of the Currency Devaluation .....	23
3.5 Conclusion .....	24

4. PERFORMANCE OF THE WHEAT SUBSECTOR .....	26
4.1 Efficient Use of Resources .....	26
4.2 The Profitability of Public and Private Milling Companies .....	27
4.3 The Impact of External Shocks .....	28
4.4 Market Efficiency .....	29
4.5 Conclusion .....	30
5. RECOMMENDATIONS .....	31
5.1 First Best Scenario .....	31
5.2 Second Best Scenario .....	33
REFERENCES .....	36
STATISTICAL ANNEX .....	37

## LIST OF TABLES

Table 2-1: Total Milling Capacity for 82-percent Flour by Region, 2001 .....	4
Table 2-2: Regional Distribution of <i>Baladi</i> Bakeries and Flour Warehouses, 2001 .....	4
Table 2-3: Maize Flour Production and Wheat/Maize Flour Mixing in Public and Private Sector Mills, 2002 .....	10
Table 2-4: Maize Flour Production and Wheat/Maize Flour Mixing in Public Sector Milling Companies, 2002 .....	10
Table 2-5: Milling Capacity for 72-percent Flour .....	12
Table 3-1: GASC Deliveries of Subsidized Flour to Bakeries and Warehouses .....	17
Table 3-2: GASC Wheat and Maize Purchases for Subsidized Flour .....	17
Table 3-3: Wheat Production and Deliveries to GASC, by Region .....	22
Table 3-4: White Maize Production and Deliveries to GASC .....	23

## LIST OF FIGURES

Figure 2-1: Wheat Subsector .....	5
Figure 2-2: Wheat Milling Marketing Channels (72%) .....	14

## LIST OF ANNEX TABLES

Table 1: Public Sector Milling Capacity for 82 Percent Flour, 2001 .....	38
Table 2: Private Sector Milling Capacity for 82 Percent Flour, 2001 .....	39
Table 3: Number of Warehouses and Bakeries Distributing <i>Baladi</i> Flour .....	40
Table 4: Technology of Public Milling Companies for 82% Flour, 1997 & 2001 .....	41
Table 5: Milling Companies Producing Maize Flour Status in April 2002 .....	42
Table 6: Public Milling Companies, Capacities for 72% Flour .....	45
Table 7: Distribution of Subsidized Flour by Governorate and Region .....	46
Table 8: Private Milling Companies, Daily Capacities for 72% Wheat Flour, 1997-2001 .....	47
Table 9: Wheat Production and Deliveries to GASC .....	48

## LIST OF ACRONYMS

APRP	Agricultural Policy Reform Program
GASC	General Authority of Supplies and Commodities
HCFI	Holding Company for Food Industries
HCRWM	Holding Company for Rice and Wheat Mills
IFPRI	International Food Policy Research Institute
MALR	Ministry of Agriculture and Land Reclamation
MTS	Ministry of Trade and Supply (now MSHT)
MSHT	Ministry of Supply and Home Trade
MVE	Monitoring, Verification and Evaluation Unit (APRP)
PCSS	Public Company for Silos and Storage
RDI	Reform Design and Implementation Unit (APRP)
USAID	U.S. Agency for International Development

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The authors and the MVE Unit alone are responsible for any errors and omissions. The findings and conclusions of this study are those of the MVE Unit and not of the APRP as a whole or USAID.

## EXECUTIVE SUMMARY

### Background

Egypt is the world's largest wheat consumer per capita. In 2000, wheat consumption totaled about 12 million tons, of which 5.8 million tons were imported, making Egypt the world's second largest wheat importer. Ten APRP benchmarks were directly or indirectly related to the wheat subsector. One was aimed at reducing market restrictions, a second dealt with increasing private sector participation in wheat flour milling, and the other eight dealt with various aspects of the wheat flour subsidy program. In 1998, the APRP Monitoring, Verification and Evaluation Unit (MVE) carried out a baseline study of the structure, conduct and performance of the wheat sub-sector. The present study identifies changes that have occurred since the baseline study, assesses the impact of the APRP benchmarks, and recommends policy actions to improve subsector performance.

### Structure

The structure of the wheat subsector in Egypt is presented in Figure 1 of the main report. The subsector is divided into three market segments. The largest, accounting for 42 percent of total wheat consumption, is the subsidized flour market. This segment is totally controlled by the Government and is isolated from almost all market forces. The General Authority for Supplies and Commodities (GASC) imports wheat on the world market or purchases domestic wheat at a fixed producer price and contracts with mills to produce 82-percent extraction flour. Ninety percent of this flour is produced by public sector mills. GASC takes delivery of the flour from the mills and distributes it to licensed bakeries and retail flour warehouses who sell the subsidized *baladi* bread and flour at prices fixed by the Government.

The second market segment, accounting for 25 percent of total wheat consumption, is 72-percent flour, which is used for high quality breads, pastries, pasta and other manufactured wheat products. This market segment is officially unregulated but is subject to restrictions needed to keep the subsidized flour market isolated. The specific restrictions are: 72-percent flour can only be produced from imported wheat; mills are only allowed to produce 72-percent or lower extraction flour; and individual mills may produce 72-percent or 82-percent flour, but not both.

The third market segment is the rural market, which consists of the wheat that is produced and consumed in rural areas and accounts for about 33 percent of total wheat consumption. In 2001, about four million tons of wheat were consumed in rural areas out of a total production of about six million tons. This market is unregulated. Farm households take their wheat to thousands of small village mills for processing and either consume it themselves or sell it on the local market.

### Changes in Structure

There have been three significant structural changes in the wheat subsector since the baseline study was carried out in 1998.

- *The introduction of an 80:20 wheat-maize mix in subsidized flour.* The Government started a pilot wheat-maize mixing program in 1996 as a way of reducing the cost of the flour subsidy program and saving foreign exchange. An additional benefit is that, if the wheat and maize flours leave the mill already mixed, the 82-percent wheat flour cannot be sifted into 72-percent flour and leaked into the unsubsidized market. In 1999, one of the APRP benchmarks required the Government to produce at least 50,000 tons of wheat-maize flour, mixed at the mill. This target was achieved in 2000, but progress since then has been minimal. Between 600,000 and 800,000 tons of maize are being milled for the subsidized flour program, but only 95,000 tons are being mixed at the mill, thus preventing the program from having very much impact on the leakage problem.
- *The implementation of a ministerial decree requiring all mills producing 82-percent flour to convert from stone mills to cylinder mills by the end of 2002.* At the end of 2001, stone mills still accounted for 35 percent of public sector subsidized flour capacity and 88 percent of private sector capacity. Although these percentages will drop somewhat in 2002, there is no possibility that all of the stone mills will be converted to cylinder by the end of the year.
- *The rapid growth in private sector production capacity for 72-percent flour.* In 1997, total production capacity for 72-percent flour was 2.6 million tons per year, of which 71 percent was in the public sector. By 2001, productive capacity had increased to 5.1 million tons, with all of the increase occurring in the private sector. The private sector now accounts for 61 percent of total 72-percent flour milling capacity, up from 29 percent in 1997.

Despite these changes, the basic structure of the wheat subsector remains unchanged from what it was when APRP started. The subsector remains characterized by three distinct markets: the subsidized flour market, where the Government is the only buyer; the 72-percent flour market, where the flour is sold on the open market; and the rural market, where the wheat is consumed by farm households or sold to other rural households. The need to keep the 82-percent flour market totally separate from the other two means that there are almost no unregulated ties between the three markets.

## **Conduct**

How subsector participants behave in the highly controlled structure described above depends to a large extent on whether they are in the public or private sector.

In the public sector, the key player is GASC. As a government agency its role is to implement the Government's food subsidy program. Between 1997 and 2001, GASC deliveries to *baladi* bakeries and subsidized flour warehouses declined by 11 percent. This is the combined result of a three percent increase in deliveries to bakeries, which are located mostly in urban areas, and a 43-percent drop in deliveries to flour warehouses, which are located mostly in rural areas. Over this same period, GASC increased its purchases of domestic wheat from one million tons in 1997 to 2 million tons in 2001, and reduced its wheat imports from 4.8 million tons in 1997 to 1.7 million tons in 1997. None of these changes, which have ramifications throughout the subsector, are influenced by open-market forces. The reduced deliveries most likely reflect government budget constraints, and the increased domestic purchases and reduced imports reflect the Government's policy of maximizing domestic purchases regardless of relative prices.

Unlike GASC, the public sector milling companies are intended to function as autonomous businesses. They are, however, overwhelmingly influenced by government decisions, not market forces. Their main activity is to produce subsidized flour for a milling fee that is too low to cover all of their costs. This accounts for 85 percent of their total production. Not only are these companies continuing to produce 82-percent flour despite the low milling fee, they are being forced to shift production from marginally profitable stone mills to unprofitable cylinder mills. The public milling companies also produce 72-percent flour in competition with the private sector. This accounts for 15 percent of their total production. They produce a generic 72-percent flour and have tended to compete on price rather than quality, product differentiation and customer service.

*Baladi* bakeries and subsidized flour warehouses are private firms, but are in the same situation as the public mills. They have no flexibility in what they produce or how much, nor in their baking and retail margins. Their sole objective is to minimize operating costs. Since the retail price for *baladi* bread and 82-percent flour has not changed since 1991, bakeries and flour warehouses are making ends meet by leaking some 82-percent flour into the 72-percent market. Unofficial MSHT estimates of 82-percent flour leakage range from 30 to 45 percent, compared to estimates of about 20 percent in 1998.

The private milling industry presents a strikingly different picture. The driving force for private mills is the 72-percent flour market. In 1997, there were eight private sector mills producing 72-percent flour, with a total capacity of 750,000 tons per year. By 2001, there were 30 mills with an annual capacity of 3.1 million tons. These firms are highly market oriented. They are constantly upgrading their mills to meet customer needs. This includes increasing capacity, installing blending machines, and investing in storage facilities to prevent disruptions in wheat supplies. They compete primarily on quality, product differentiation and customer service, and less on price. As a result, they have increased market share relative to public sector firms while receiving higher prices for their products.

As previously noted, private sector mills also produce subsidized flour for the Government under the same arrangements as the public sector mills. In contrast to the public milling companies, most of the private milling companies are not investing in cylinder mills for subsidized flour production. The low milling fees effectively exclude the private sector from the large 82-percent flour market.

The rural market, i.e., the domestic wheat that remains in rural areas, is uncontrolled, but the behavior of rural producers is heavily affected by the what GASC pays for wheat, which is fixed by the Government. The percentage of total production that was sold to GASC increased from 17 percent in 1997 to 32 percent in 2001, which means that the quantity of domestic wheat consumed directly in rural areas has declined significantly.

The conduct of the wheat subsector presents a picture of firms coping the best they can in a largely centrally planned subsector. Public milling companies are accepting milling fees that do not cover costs and are converting their profitable stone mills to unprofitable cylinder mills for 82-percent flour production. Private milling companies are investing heavily in 72-percent flour production and, with a few exceptions, are phasing out of 82-percent flour. Overall, the firms operating in the least regulated market, i.e., private mills producing 72-percent flour, have been the most vibrant. Throughout the subsector, however, it is clear that government restrictions are distorting markets, causing firms to make

sub-optimal decisions, and adversely affecting overall subsector performance.

## **Performance**

The report looks at four measures of subsector performance: the efficient use of resources, profitability, the ability to cope with external shocks, and market efficiency. The findings are summarized below.

**Efficient Use of Resources.** There are numerous examples of the inefficient use of resources resulting from government controls:

- Public sector milling companies are investing in 82-percent flour milling despite negative returns.
- GASC wheat import decisions are not based on world prices relative to the domestic price.
- Mills producing 72-percent flour are prohibited from purchasing domestic wheat, even if it less expensive than imported wheat.
- The high level of leakage from the subsidized to the unsubsidized market means that the cost of the flour subsidy program per intended beneficiary is much higher than it needs to be.

The situation in the private sector is more mixed. Here the measure of efficiency is the soundness of investment decisions. Private sector investments in 1997 and 1998 came as a response to the huge profits achieved when renting public mills in the period from 1993 to 1996. They had clear potential profitability as motivation for investment. Most of these initial investors have continued to invest in increasing their capacity and upgrading their equipment. The second wave of private investments starting from 1999, on the other hand, took place despite the confirmed and continuing excess capacity problem in 72-percent flour production. Capacity utilization in these new mills is low and most are incurring large losses.

**Profitability.** Here the major differentiation is between the public and private sectors. Most of the mills in the public sector are cylinder mills producing 82-percent flour. These are all incurring losses because of the low milling fee. As noted in the previous section, the established private mills producing 72-percent flour appear to be profitable, but the mills that have opened in the last three years are unprofitable. Public sector mills producing 72-percent flour, which are operating at 50-percent capacity, appear to be marginally profitable. Although there is no data on profitability, information obtained in interviews would indicate that, as a group, the private mills are profitable and the public mills are unprofitable. Overall, the trends are negative. For the 72-percent flour mills profits are declining because of the overcapacity and currency devaluation. For the 82-percent mills losses are growing because 1) milling fees are not increasing, 2) the profitable stone mills are being forced to close, and 3) the currency devaluation is increasing the cost of imported wheat.

**Ability to Cope with External Shocks.** The major external shock over the last three years has been the 25-percent devaluation of the Egyptian pound. The immediate impact was to increase the cost of imported wheat. This would normally have resulted in increased wheat flour prices and reduced profitability across the board, but government controls have prevented the normal adjustment process from working efficiently. First, the Government helped the public mills to import wheat at the official rate, while private mills were forced to obtain foreign exchange at black market rates, thus causing a shift in

the competitive balance from the private to the public mills. Second, mills producing 72-percent flour cannot shift from imported to domestic wheat, and conversely farmers are not receiving the market signals that would induce them to increase production in response to changing terms of trade. Finally, the devaluation is making it more expensive to replace stone mills with cylinder mills, thus assuring the continued leakage of subsidized flour into the unsubsidized market. The inability of the subsector to respond appropriately to the currency devaluation is indicative of the impact of government controls on the ability of the subsector to cope with external shocks.

**Market Efficiency.** The previous sections have discussed numerous examples of market inefficiency. The major findings are:

- The 82-percent flour production and marketing chain is not subject to any market forces.
- The rural market segment is free of government controls, but farmers are virtually isolated from all wheat market forces outside of the rural areas.
- Markets are functioning best for the 72-percent flour, but with significant distortions.

Markets in the wheat subsector will not operate efficiently until most of the government controls are removed.

## **Recommendations**

The main overall recommendation is that the Government remove most controls on the wheat sub-sector and privatize the public milling companies. This would eliminate the division of the three market segments and open the entire subsector, including subsidized flour production, to free market forces. Instead of the existing controls all along the subsidized flour production and marketing chain, there would be only two government interventions in the wheat subsector. One would be a producer floor price designed, first, to stabilize the wheat price for farmers and, second, to encourage maximum wheat self-sufficiency in line with the country's comparative advantage. The second intervention would be government purchases of a wheat-maize flour mix from mills at competitive open market prices for the flour subsidy program, which would continue at its present level. This one far reaching change in government policy would eliminate virtually all of the market distortions and inefficiencies identified in this report.

A second, less desirable but more realistic, approach would be to maintain existing government policies, including the three separate market segments, but improve the implementation of those policies. Under this approach, the report recommends the following actions:

- Fully and rapidly implement the wheat-maize mixing program, which would virtually eliminate the leakage problem.
- Allow public milling companies to use private services, thus recognizing that they should be allowed to operate as private businesses.
- Reduce ambiguity and haphazardness in government policies vis-a-vis the public milling

companies. This would increase their efficiency as well as improve the business climate for private sector firms.

- Rationalize the flour subsidy program, and redefine “social responsibility” for public sector firms.
- Restrict public milling companies to the production of subsidized flour. This would leave the 72-percent flour market to the competitive, uncontrolled and unsubsidized private sector, and the Government would not feel obliged to assist public milling companies in the domain of 72-percent flour when external shocks hit the wheat subsector.
- Take measures to bring the subsidized flour milling fees in line with actual costs. With milling fees reaching full cost levels, the social responsibility is clearly passed on to MSHT in its direct relation with consumers instead of being forced onto the public milling companies.

## 1. INTRODUCTION

Egypt is the world's largest wheat consumer per capita and the second largest wheat importer. In 2000, wheat consumption totaled about 12.2 million tons, of which 6.4 million tons were grown domestically and 5.8 million tons were imported. The performance of the wheat subsector, therefore, has a significant impact on the overall performance of the Egyptian economy as well as the well-being of the Egyptian population.

The subsector is divided into three market segments :

- 82-percent flour, which is used to produce *baladi* bread and is heavily subsidized. This segment, accounting for about five million tons of wheat consumption, is totally controlled by the Government.
- 72-percent flour, which is used in the production of high quality breads, pastries, and manufactured wheat products, including pastas. This segment, accounting for about three million tons of wheat consumption, receives no subsidies and is not subject to any government regulations, other than what is necessary to keep it separate from the subsidized market.
- The remainder of the wheat market consists of all of the wheat that is produced and consumed in rural areas. This segment accounts for about four million tons of wheat consumption.

Although there are no direct government restrictions on the production and sale of 72-percent flour, measures to keep the subsidized and unsubsidized parts of the market separate significantly constrain how firms producing this flour can operate. Leakage from the subsidized to the unsubsidized markets also affects the behavior and performance of firms in all three market segments. Finally, there are important differences in behavior between firms in the public and private sectors. Public sector flour mills account for about 70 percent of total wheat milling capacity in Egypt, excluding the rural village mills. Not only is the performance of these mills an important determinant in the performance of the overall subsector, their very presence has a significant impact on the conduct and performance of the private sector firms. In short, the existence of two wheat flour markets, one subsidized and one unsubsidized, and two categories of flour mills, public sector and private sector, are major factors in the overall structure, conduct and performance of the wheat subsector in Egypt.

The USAID-funded Agricultural Policy Reform Program (APRP), which began in 1996, was divided into five annual tranches, each with a set of policy reform benchmarks. Although the wheat subsector was not a major focus of the program, over the time frame of these five tranches, ten policy actions directly or indirectly related to wheat were called for - two dealing with flour milling and marketing and eight dealing with food security. These actions, which were carried out by the Government of Egypt with APRP support, are listed below:

### 1.1 Tranche I

- Verify that there are no government restrictions vis-a-vis millers (public or private) of 72-percent flour, unless their price exceeds the border price, or in case of market failure.
- Conduct a comprehensive study of wheat marketing and flour milling, toward allowing the private sector to increase its participation in this business.

- Study alternatives to replace to replace the remaining subsidies on food commodities.
- Conduct a study toward establishing a safety net program for the poorest households.
- Monitor the impact of market liberalization and privatization on food security, income and employment, recommend measures to avoid negative impacts in the medium term.
- Expanding on the analysis of food security conducted in 1993 and 1994, develop a plan for targeting food assistance and moderating price and income variation under the liberalized market regime.

## **1.2 Tranche II**

- The Government will determine politically and socially acceptable options for targeting food subsidies to the poor and test these options in selected representative sites

## **1.3 Tranche III**

- The Government (Ministry of Trade and Supplies) will revise the criteria and procedures of selecting ration card holders in order to target the ration system to needy people.

## **1.4 Tranche IV**

- The Government (MOTS) will make the necessary arrangements to produce at least 50,000 MT of mixed wheat-maize flour at flour mills and then supply the mixed flour to bakeries and warehouses.
- The Government (MOTS) will improve equity of the rationed food subsidy system by increasing benefits to the poor and reducing benefits to the rich, by converting 25,000 red cards currently held by poor households into green cards.

In early 1999, as part of its impact evaluation program, APRP's Monitoring, Verification and Evaluation Unit (MVE) carried out a baseline study of the structure, conduct and performance of the wheat subsector<sup>1</sup>. The purposes of this study are to identify changes that have occurred since the baseline study, assess the impact of the APRP-sponsored actions on those changes, and recommend further policy actions to improve subsector performance.

The report is divided into four parts. Part I discusses the structure of the wheat subsector, focusing on changes that have occurred since 1998. Part II analyzes the behavior of public and private sector firms along the entire production and marketing chain. Part III analyzes performance at the firm and overall subsector levels in terms of efficient use of resources, profitability and efficiency of markets. Finally, Part IV recommends policy reforms and other actions to improve the performance of the wheat subsector in Egypt.

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<sup>1</sup> Tyner et al, *Wheat Subsector Baseline Study*, Monitoring and Evaluation Unit, APRP, May 1999.

## 2. STRUCTURE OF WHEAT SUBSECTOR

The division of the wheat subsector into three markets is depicted in Figure 2-1. This chapter describes each of these markets and discusses changes that have occurred since 1997.

### 2.1 82-percent Flour

Eighty-two percent flour is used in baking the subsidized baladi bread and is therefore under the tight control of the Ministry of Supply and Home Trade (MSHT). All of the subsidized wheat flour is 82-percent extraction, which means that, in the milling process, the whole wheat flour is refined into 82-percent flour and 18 percent bran. The reason for the tight controls is that large profits can be earned from further refining the 82-percent flour into 72-percent flour and selling it on the open market at unsubsidized prices. Every year a Wheat Committee under MSHT sets the quantity of 82-percent flour to be milled based on needs as estimated by each of the governorates. The ministry then decides how much is to be procured domestically and how much is to be imported and sets the price at which the domestic wheat is to be purchased. The General Authority for Supply and Commodities (GASC) is the implementing agency for the entire process, starting with wheat procurement and ending with the sale of the 82-percent flour to licensed baladi bread bakeries and flour warehouses.

As the sole importer of wheat for 82-percent flour milling, GASC purchases the wheat on open world markets, takes delivery at the ports and transports the wheat to the flour mills utilizing the storage and handling facilities of other government agencies. GASC is also the sole purchaser of domestic wheat for 82-percent milling, utilizing agents who purchase the wheat from farmers on GASC's behalf. The main agents are PBDAC and the agricultural cooperative societies. Recently, the Egyptian Company for the Marketing, Export and Production of Agricultural Crops (EMEPAC) has also become a GASC agent, although the quantities it purchases remain quite small. These agents take delivery of the wheat at their buying points and storage facilities. In addition, private traders purchase wheat at the farm gate for sale to the GASC agents or directly to GASC.

GASC contracts with individual mills for the production of 82-percent flour. For each mill, the quantity of wheat to be milled is determined by the quantity of 82-percent flour that is to be delivered in the region where the mill is located and the mill's capacity; the milling fee is determined by the milling cost of that particular mill plus a negotiated profit. Milling fees have, in fact, not increased since they were first set in the early 1990s. GASC retains ownership of the wheat during the entire process. Table 2-1 shows that most of the 82-percent flour milling capacity is in the public sector<sup>2</sup>. 110 public sector mills, owned by seven milling companies, account for 85 percent of capacity and 33 private sector mills, over half of them in the Cairo area account for the remaining 15 percent. This represents no change from 1997. Although all seven milling companies were partially privatized in the early 1990s, management

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<sup>2</sup> The Government divides the country into seven regions for managing the subsidized flour program. Statistical Annex Table 1 shows the geographic coverage of each region. The seven milling companies are named after the regions they are responsible for supplying.

is still controlled by the Government. No further privatization is likely as long as the subsidized flour program continues in its present form.

**Table 2-1: Total Milling Capacity for 82-percent Flour by Region, 2001**

Region	Public Sector		Private sector		Total
	Capacity (tons/day)	Percent	Capacity (tons/day)	Percent	Total (Tons/day)
North Cairo	1,960	89.5	230	10.5	2,190
South Cairo	1,517	53.5	1,320	46.5	2,837
Alexandria	1,845	100.0	-	0.0	1,845
Mid and West Delta	2,520	76.8	760	23.2	3,280
East Delta	2,325	92.9	179	7.1	2,504
Middle Egypt	2,470	92.5	200	7.5	2,670
Upper Egypt	3,066	95.5	145	4.5	3,211
Total	15,713	84.7	2,834	15.3	18,547

Source: Statistical Annex Tables 1 and 2.

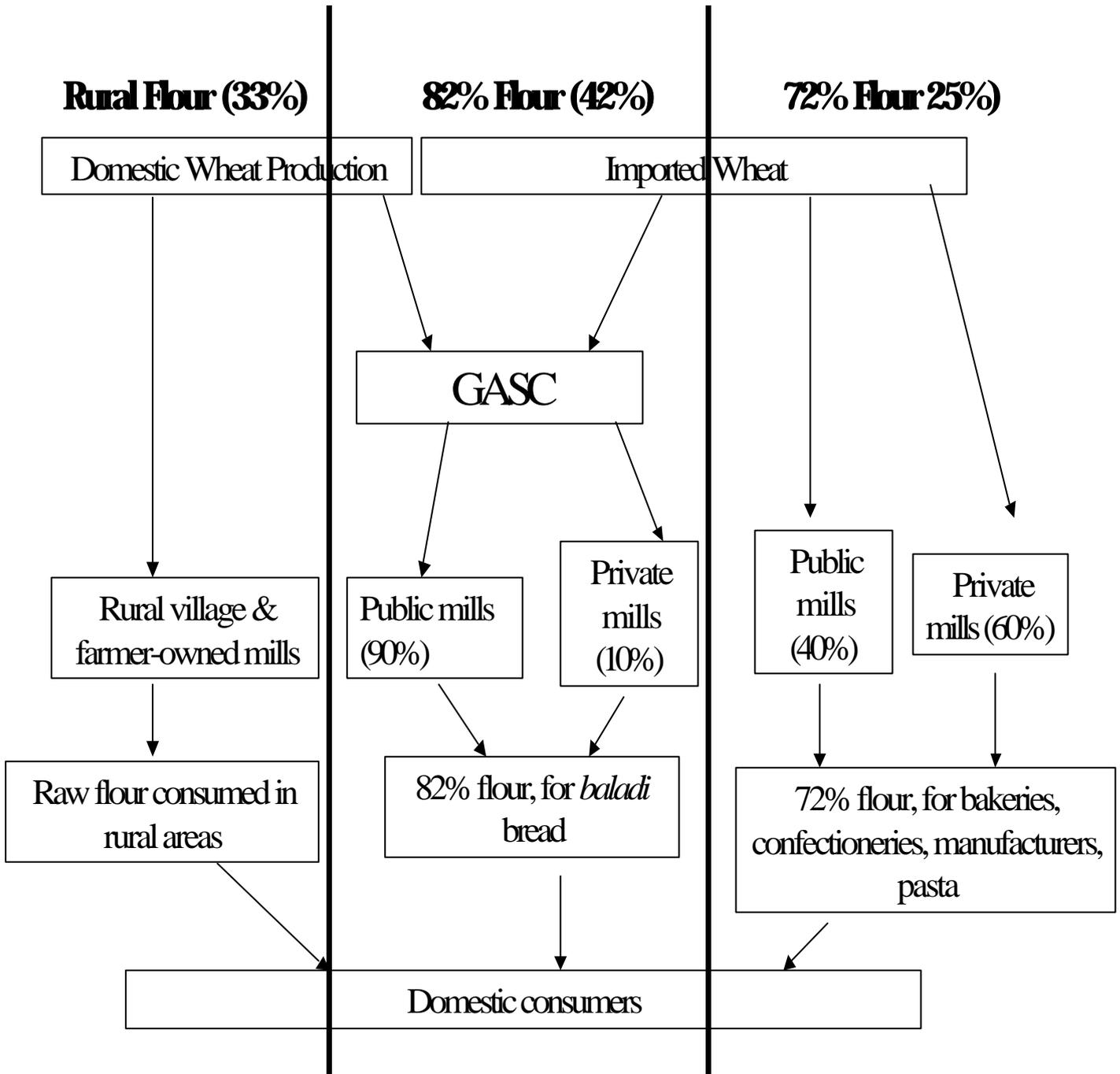
GASC takes delivery of the flour from the mills and sells it either to *baladi* bread bakeries for LE 290 per ton, or to flour warehouses for LE 500 per ton. These prices have not changed in over ten years. There are 11,000 bakeries located mostly in urban areas, and 20,000 flour warehouses located mostly in rural areas. Table 2-2 shows the geographic distribution of these outlets. The difference between the GASC selling prices and the full cost incurred by GASC is the subsidy that is paid by the Government through MSHT. Baking margins are very precisely calculated. *Baladi* bread sells for 5 piastre per loaf, and bakers are required to produce ten loaves of *baladi* bread per kg of flour and each loaf must weigh 130 grams. The flour warehouses sell 82-percent to consumers at a fixed price of LE 0.55 per kg.

**Table 2-2: Regional Distribution of *Baladi* Bakeries and Flour Warehouses, 2001**

Regions	Bakeries	Warehouses
Cairo/Giza	1,254	0
Alexandria/Matrouh	1,002	283
Mid and West Delta	2,558	4,584
East Delta	1,741	1,539
Middle Egypt	3,245	4,695
Upper Egypt	1,173	8,946
Total	10,973	20,047

Source: Statistical Annex Table 3.

Figure 2-1: Wheat Subsector



## 2.2 72-percent Flour

72-percent flour is used to produce all wheat products consumed in Egypt except *baladi* bread and the traditional bread baked by rural households from locally milled flour. These products include pasta, various European and Middle Eastern breads, including those used by fast food and pizza establishments, freshly baked pastries, and a wide range of manufactured foods, including cereals, cookies and cakes.

Prior to 1992, only public sector mills produced 72-percent flour. When the Government allowed private importers to import 72-percent flour, domestic production dropped so that in 1993, public sector mills producing 72-percent flour were operating at only 50 percent capacity. To encourage the private sector to import wheat and mill it domestically, the Government decided to allow the private sector to rent public sector mills. Over time, the public sector milling companies gradually increased the rental fees and converted some of their other mills to the production of 72-percent flour in direct competition with the rented mills. This led the private millers to terminate their rental agreements and build their own mills. By the end of 1997, there were nine private mills producing 72-percent flour with an annual capacity of 780,000 tons, and 19 public sector mills with a capacity of 1.87 million tons.

The 72-percent wheat flour market is officially unregulated. Mills do their own importing and are unrestricted in the quantities they can import or from where. Nor do the mills face any restrictions on the quantities they can mill, the prices they can charge, or to whom they can sell. There are also no restrictions on the building of new mills or the expansion of existing ones. The 72-percent flour market, however, does face restrictions related to the need to keep the subsidized flour market isolated. First, the mills are only allowed to produce 72-percent extraction flour, thereby limiting their ability to differentiate their products to meet customers' needs. Related to this restriction is the requirement that each mill produce either 82-percent or 72-percent flour, but not both. These restrictions facilitate the Government's task of minimizing the leakage of subsidized wheat flour into the open market. A final restriction is that 72-percent flour can only be produced from imported wheat. This is to assure that all of the domestic wheat not consumed in rural areas is sold to GASC for the subsidized flour program.

## 2.3 The Rural Market

Wheat in Egypt is grown primarily for home consumption or sale in the local villages. Rural households take their wheat to thousands of village mills for processing into 100 percent or less extraction flour, depending on the client's needs. The one market for wheat outside of the rural areas is the Government, which purchases wheat for 82-percent flour. As noted above, this market is totally controlled by the Government. Because of constant government budget constraints, the producer price is increased only infrequently. The producer price was increased from LE 95 to LE 100 per ardeb for the 2001-2002 season - the first increase since 1995<sup>3</sup>. In effect, the rural wheat market is isolated from all market forces outside of the rural areas. Production decisions are based on rural household needs and the

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<sup>3</sup> An ardeb is a volume unit of measurement. One ardeb equals 150 kilograms of wheat and 140 kilograms of maize.

returns to be earned from selling wheat at the official producer price, versus what might be earned from alternative uses of land and labor.

In addition to wheat, the Government purchases significant quantities of white maize for use in the subsidized *baladi* bread. The goal is for all of the *baladi* flour to be 80 percent wheat and 20 percent maize. Maize is grown mainly for local consumption, both human and animal, and is not subject to any government controls. Although there is a fixed producer price of LE 80 per ardeb for maize sales to GASC, these sales are not large enough to have a significant impact on the structure of the rural maize market.

## **2.4 Changes in Structure Since 1997**

There have been four significant structural changes in the structure of the wheat subsector since 1997: the conversion of mills producing *baladi* flour from stone to cylinder; the use of an 80:20 wheat-maize mix for *baladi* flour; the large increase in private sector production capacity for 72-percent flour; and changes in the institutional structure for public milling companies.

### **2.4.1 The Conversion of 82-percent Flour Mills from Stone to Cylinder**

The most important development for mills producing *baladi* flour is the MSHT Decree # 45 issued in January 1998 requiring that all stone mills be changed to cylinder mills by the end of 2002. A committee<sup>4</sup> has been created to monitor the implementation of the decree. The announced reasons for technology upgrading are numerous: increase the efficiency of production by reducing wheat waste<sup>5</sup>; reduce health hazards caused by small stones in flour and the unhealthy air breathed by mill employees; take a long overdue step in replacing an antiquated technology with modern milling technology being used worldwide<sup>6</sup>; and, finally, allow for wheat-maize flour mixing inside the mills instead of in the *baladi* bakeries and flour warehouses.

Statistical Annex Table 4 shows the progress achieved in the technology upgrading of public milling companies since the decree went into effect. As of the end of 2001, the total number of cylinder mills used in 82-percent flour milling had remained unchanged. The changes in the number of cylinder mills at the level of individual milling companies is due to shifting between 82-percent and 72-percent flour

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<sup>4</sup> The committee has experts in engineering, nutrition and milling along with representatives from MSHT and the Ministry of Agriculture.

<sup>5</sup> It was previously claimed that stone mills are most suitable for milling domestic wheat because of its high dust content, but experts in the Chamber of Cereals have argued that the advantages of technology upgrading far outweigh those of keeping the stone mills in operation. Nevertheless, they do admit that the new upgraded mills are required to include washers and a special sifting system to handle the special nature of domestic wheat without damaging the new mills.

<sup>6</sup> The high value of bread made of stone milled wheat flour that is seen in the US and Europe represents a special niche market and does not negate the fact that the predominant technology in these countries is still cylinder and disk mills. Moreover, stone mills in the US and Europe use a special blend stone mix that prevents the breaking of small pieces into flour during the process of production as in the case of Egypt's stone mills.

at some mills. Nationwide, 18 of the 64 stone mills in the public sector had been closed, with Alexandria and East Delta having made the most progress. The end result is that the share of stone mills in total 82-percent flour milling capacity in public milling companies declined slightly from 41 percent in 1997 to 35 percent at the end of 2001. The situation is even less impressive in the private sector where only four mills accounting for 12% of total capacity have actually implemented the upgrading. Four other companies have already declared that they will not go through the upgrading.<sup>7</sup>

Public milling companies began converting their stone mills to cylinder mills in the early 1990s, which explains why cylinder mills already accounted for 59 percent of total 82-percent flour milling capacity in 1998. The Ministerial Decree was intended to force the milling companies to complete the conversions by the end of 2002. This deadline will not be met, but the conversion could be completed by the end of 2003 if the Government chooses to strongly enforce the decree with a one year extension. Several new cylinder mills are currently under construction, including five in Upper Egypt, which will significantly reduce the share of total milling capacity accounted for by stone mills by the end of 2002. It should also be noted that there is 50 percent excess capacity in the 72-percent flour milling capacity of public milling companies. This means that up to three million tons of capacity could be shifted to 82-percent flour. Taking all of these factors into account it seems that closing all of the stone mills by the end of 2003 is technically achievable.

The main reason behind the limited response to the Ministerial Decree is the low milling fee paid by the Government for subsidized flour. A second reason is the high cost of the required change especially in light of the Government's total passiveness to provision of any assistance to millers. The recent and continuing increase in the exchange rate is significant deterrent to completion of technology upgrading as the cost of imported cylinder mills automatically becomes considerably more expensive when measured in Egyptian pounds. The industry expects that, under the circumstances, the deadline for conversion will be extended to the end of 2003.

#### **2.4.2 The Introduction of a Wheat-Maize Mix for Subsidized Flour**

The Government started a pilot wheat-maize flour mixing program in 1996 and in the following year began to expand it nationwide. The production of wheat/maize compound flour involves two stages: maize flour production and wheat-maize flour mixing. The mixing can either take place inside the mill or outside the mill. In the former case bags of compound flour are sent to bakeries to be used directly for the production of bread. In the latter case, separate bags of maize flour and wheat flour are sent to bakeries. The mixing of the two types of flour is done manually inside individual bakeries. Given the already existing problem of leakage of subsidized 82-percent wheat flour to 72-percent uses, reduction of leakage is one of the important targets of wheat/maize flour mixing. At present it seems to be even more important than wheat import cost reduction, which was the original reason behind introducing maize in baladi bread. The difficulty of sifting the compound flour sent out by mills reduces the leakage to a minimum at the level of bakeries. Manual mixing inside bakeries, on the other hand, doesn't prevent the leakage at all. In assessing the progress of the wheat-maize flour mixing program several questions emerge: What is the quantity of maize flour produced in Egypt? How much of it comes from the public

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<sup>7</sup> See Statistical Annex Table 2 for a complete list of private mills producing 82-percent flour.

sector and how much from the private sector? What kind of mills are used for maize milling in both sectors? How much of the wheat/maize mixing is taking place inside the mills? And what is the technology used for mixing the two kinds of flour inside the mills ?

Tables 2-3 and 2-4 provide some answers to the above questions<sup>8</sup> as they describe the situation in April 2002. According to table 2-4, the total quantity of maize milled in Egypt at the present time is 2,630 tons per day, i.e., 820,560 tons per year. Using the 80:20 wheat-maize ratio, this means that theoretically 3.3 million tons of wheat /year could be mixed with maize flour thus producing compound wheat-maize flour equal to 3.4 million tons. This represents about 60 percent of Egypt's total yearly 82-percent wheat flour production. Realistically, however, we observe from Table 2-3 that only 310 tons of maize per day are actually mixed inside the mills. This is equivalent to yearly compound flour production of 483,600 tons which is no more than 9 percent of total yearly 82-percent wheat flour production. The rest of maize flour produced is delivered to bakeries in separate bags which provides absolutely no guarantee that the mixing actually takes place, thus leaving the possibility of 82-percent wheat flour leakage to 72% uses exactly the same as before.

Probing deeper into maize flour production in Egypt, it is observed that the public sector dominates its production. According to Table 2-3, 95 percent of maize milling takes place in public milling companies, which is not surprising given that these companies dominate the production of 82-percent wheat flour in the first place. According to Table 2-4, public milling companies dedicate 30 percent of their mills and 12 percent of their subsidized flour productive capacity to the production of maize flour. They tend to use stone mills more than any other technology for the production of maize flour. According to Table 2-4, 54 percent of public stone mills and 25 percent of stone mill productive capacity are dedicated to the production of maize flour. On the other hand non stone mills (old and new cylinder mills) producing maize flour represent only 12.5 percent of the total number of mills and no more than five percent of their productive capacity.

The wheat-maize mixing inside the mill takes place in only two mills in all public milling companies, thus representing only 0.8 percent of their total productive capacity. The mixing takes place in technologically advanced facilities only, i.e., in non-stone mills where blending machines have been installed. This indicates that the companies in general have no tendency to mix flour with simple techniques (manual or otherwise) even though such techniques are easy and inexpensive to implement. This in its turn immediately implies that the actual full realization of the wheat-maize mixing target nationwide is tightly linked, if not conditional upon, the full conversion of stone mills to cylinder mills in public companies.

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<sup>8</sup> For more details on individual mills in both public and private sectors refer to Table 5 in the Statistical Annex.

**Table 2-3: Maize Flour Production and Wheat/Maize Flour Mixing in Public and Private Sector Mills, 2002**

	Public Sector				Private sector				Totals	
	Number of Mills (1)	Percent of Total Number of Mills (2)=(1)/(9)	Production (Tons/Day) (3)	Percent of Total Production (4)=(3)/(10)	Number of Mills (5)	Percent of Total Number of Mills (6)=(5)/(9)	Production (Tons/Day) (7)	Percent of Total Production (8)=(7)/(10)	Number of Mills (9)	Production (Tons/Day) (10)
Maize milling	33	85	2490	95	6	15	140	5	39	2630
Wheat/Maize mixing	2	25	170	55	6	75	140	45	8	310
Stone mills	25	96	1840	99	1	4	26	1	26	1866
Old cylinder mills	6	86	480	100	0	0	0	0	6	480
New cylinder mills	1	20	80	41	5	80	114	59	6	194
Disk mills	1	100	90	100	0	0	0	0	1	90

Source: Based on Statistical Annex, Table 5.

NB. All figures refer to maize flour production, except "wheat/maize mixing," which refers to maize flour which is then mixed with wheat flour in the mill.

**Table 2-4: Maize Flour Production and Wheat/Maize Flour Mixing in Public Sector Milling Companies, 2002**

	Number of Mills (1)	Total Number of Mills (2)	Percent of Total Number of Mills (3)=(1)/(2)	Production (Tons/day) (4)	Total Capacity (Tons/day) (5)	Percent of Total Capacity (6)=(4)/(5)
Maize milling	33	110	30	2490	20535	12
Wheat/Maize mixing	2	110	1.9	170	20535	0.8
Stone mills	25	46	54	1840	7239	25
Non-stone mills	8	64	12.5	650	13296	4.9

Source: Based on Statistical Annex, Tables 4 & 5.

NB. All figures refer to maize flour production, except “wheat/maize mixing,” which refers to maize flour which is then mixed with wheat flour in the mill.

Private sector milling companies involved in maize production are interesting to observe, despite the fact that the quantities of maize flour produced are almost insignificant when compared to the public sector (a total of 140 tons per day divided among six companies, with individual mills producing below or equal to 30 tons per day). All maize flour in private facilities is mixed with wheat flour inside the mills. Also, the technology in five of the six mills involved is new cylinders, i.e., advanced technology, as opposed to the predominance of stone mills in all public milling companies. This raises the immediate question of what is the motivation of a private milling company to invest in advanced technology for the purpose of producing compound flour, when the vast majority of private milling companies refuse to update their existing facilities? Unfortunately this question remains unanswered.

One last point in favor of public milling companies is that, in one of the two facilities where wheat-maize flour mixing is taking place inside the mill, the technology of production used is disk mills, which is considered by experts to be superior technology for maize milling<sup>9</sup>. It involves a shorter milling cycle, thus avoiding the by-production of maize oil in the milling process. It is also less expensive than new cylinders. This particular mill was financed by a Danish International Development Agency (DANIDA) grant. The question that naturally arises here as well is: why isn't the holding company encouraging its affiliate companies to go for disk mills rather than new cylinder mills as they are currently in the stage of upgrading their facilities? Again this question remains unanswered.

### **2.4.3 Increased Production Capacity for 72-percent Flour in the Private Sector**

Statistical Annex Table 6 details the changes in the productive capacities of the seven public milling companies between 1997 and 2001. It is observed that the total productive capacity of the sector increased by 4.6 percent between 1997 and 2001. This limited increase is the net outcome of the increase in the productive capacities of four of the companies and the decrease in capacity in the remaining three. As in the case of 82-percent flour, these changes are due to shifting production at individual mills between 72-percent and 82-percent flour, and not to investments in new mills or closing old ones.

Statistical Annex Table 8 presents a completely different picture for the private sector. Capacity increased by 80 percent from 1997 to 1998. The next two years witnessed another increase of 51 percent, followed by a final increase of 49 percent between 2000 and 2001<sup>10</sup>. The continuous increase in the productive capacity of the private sector led to a total increase in its productive capacity from 2,460 tons daily in 1997 to 9,990 tons daily in 2001, an increase of 306 percent.

As can be seen in Table 2-5, the new investments of private millers in their turn altered the relative contribution of public and private sector to the production of 72-percent wheat flour. The private sector share of total capacity increased from 29 percent in 1997 to 61 percent in 2001. It is interesting to note

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<sup>9</sup>An interview was held with Engineer Sami Salah Eldin from METTCO Holdings, an expert in milling technology, who was involved in the implementation of the Benha Mill in Mid and West Public Milling Company (disk mill technology).

<sup>10</sup> The increase in capacity between 2000 and 2001 includes the new companies operational in 2001 with a total capacity (1,990 tons daily) plus the increase in productive capacities of older companies (1,310 tons daily).

that despite the huge increase in the private sector's productive capacity and the very limited increase in the public sector's productive capacity in the period analyzed, public mills remain quite significant (39 percent). The reason is that the original capacity of public mills back in 1997 was already very large.

The total capacity figures shown in Table 2-5 are equivalent to 2.7 million tons in 1997 and 5.1 million tons in 2001. This compares to an estimated consumption of 2.5 to 3 million tons in 2001, indicating that excess capacity in the industry could be as high as 50 percent. Though no information is available on the feasibility studies prepared to check the financial viability of xxx investments in 72% wheat flour milling, it is not difficult to guess that such studies are either not required at all by banks as prerequisites for loans or are of a poor quality. An improvement in that domain would certainly reduce the excess capacity problem in the future.

**Table 2-5: Milling Capacity for 72-percent Flour**

Sector	1997			2001		
	No. Of Mills	Tons/Day	% of Total Cap.	No. Of Mills	Tons per Day	% of Total Cap.
Public	19	6,050	71.1	19	6,330	38.8
Private	8	2,460	28.9	30	9,990	61.2
Total	27	8,510	100.0	49	16,320	100.0

Source: Statistical Annex, Tables 6 and 8.

#### **2.4.4 The Institutional Framework of Public Milling Companies**

The institutional framework of public milling companies already changed two times before 1998. Prior to the economic reform in 1991 the seven public milling companies were affiliated to the Public Organization of Silos, Mills and Bakeries (POSMB). In 1992, POSMB was changed to the Holding Company for Silos, Mills and Bakeries (HCSMB) with the seven public milling companies still remaining under its leadership. In 1993, HCSMB was united with the Holding Company for Rice Milling to become the Holding Company for Rice and Wheat Milling (HCRWM). Five of the seven public milling companies (Alexandria Milling Company, Mid & West Delta Mills Company, East Delta Mills Company, South Cairo Mills Company and Upper Egypt Mills Company) were affiliated to HCRWM along with the Public Company for Silos and Storage (PCSS) and another six rice milling companies. The two remaining public milling companies (North Cairo Mills Company and Mid Egypt Mills Company) were affiliated to the Holding Company for Food Industries (HCFI).

In 1999 HCRWM was dissolved and all its affiliated companies were transferred to HCFI. This change meant that: 1) all seven public milling companies were reunited under the same leadership once more; 2) the services of PCSS became available to all seven companies instead of just five as before; and 3) with 34 affiliated companies, HCFI became one of the biggest holding companies in Egypt. The impact of these changes on the conduct of public mills is discussed in the next section.

Figure 2 captures the main changes that took place in wheat milling marketing channels for 72-percent flour between 1997 and 2001. The marketing channels for the final products, wheat flour and bran, didn't go through any changes in the last three years except for the introduction of exporting as a new outlet for 72-percent wheat flour by private mills<sup>11</sup>. It is important to note, however, that to date exporting of wheat flour is very limited. It is in wheat procurement and handling that explicit as well as implicit changes are detected.

## 2.5 Impact of the APRP Benchmarks

Of the ten APRP benchmarks listed in the introduction, six dealt exclusively with improving the design of the food subsidy program. and were not intended to have any measurable impact on the wheat subsector over the medium term. Their main objective was to improve the distribution of subsidized flour to the target population. Although the benchmarks were met, they did not have any impact on how the subsidized flour was distributed, and even if they had, they were not the type of changes that would have had much impact on the structure of the wheat subsector. The other four benchmarks addressed issues that have important implications for the subsector. These are discussed below.

- *Verify that all government restrictions on millers (public or private) of 72-percent flour have been eliminated. (Tranche 1)*

This benchmark was aimed at verifying a policy change that had already been announced. As noted above, the Government has implemented this policy. There are some remaining restrictions, but these are related to the Government's perceived need to protect the subsidized flour market and not to a desire on the part of government to restrict the 72-percent flour market. It should be noted that the milling industry has been pressuring the Government to restrict investments in 72-percent flour milling as a way to reduce the excess capacity problem discussed earlier, but these pressures have so far been ignored. It should also be noted that public milling companies are subject to government pressures and directives in their pricing, production and investment decisions as they relate to 72-percent flour milling, but, again, this problem is endemic to all public corporations and is not due to government desires to control the 72-percent flour market.

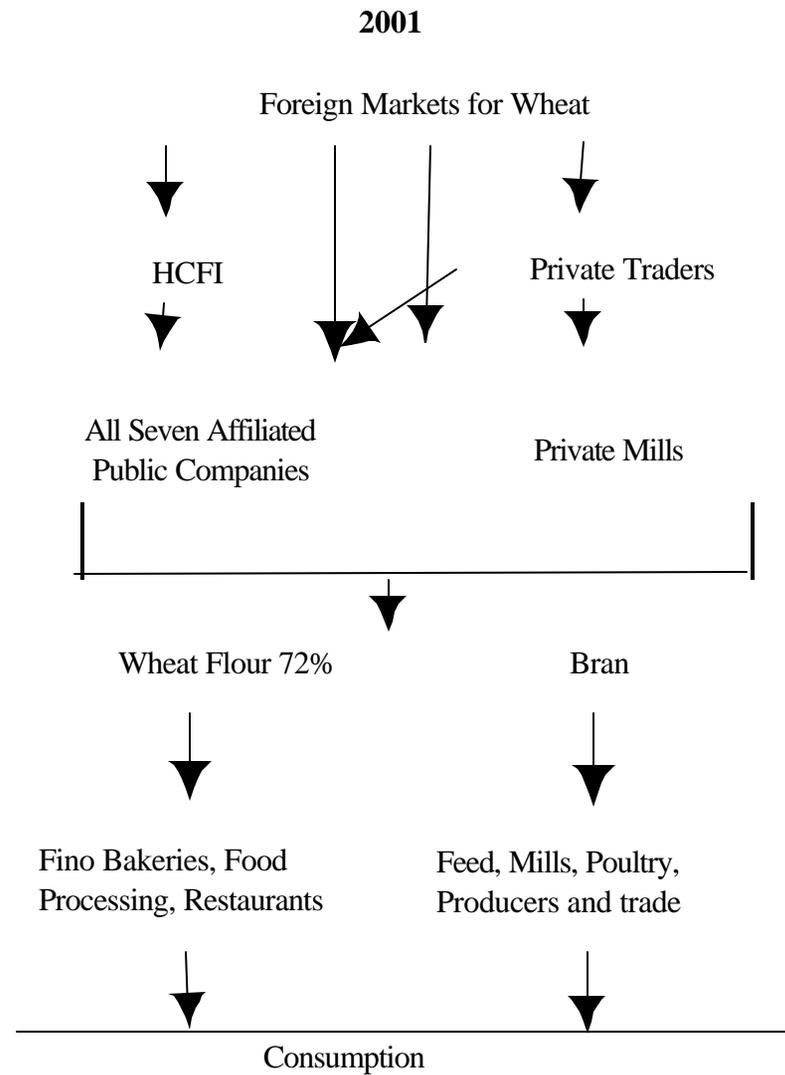
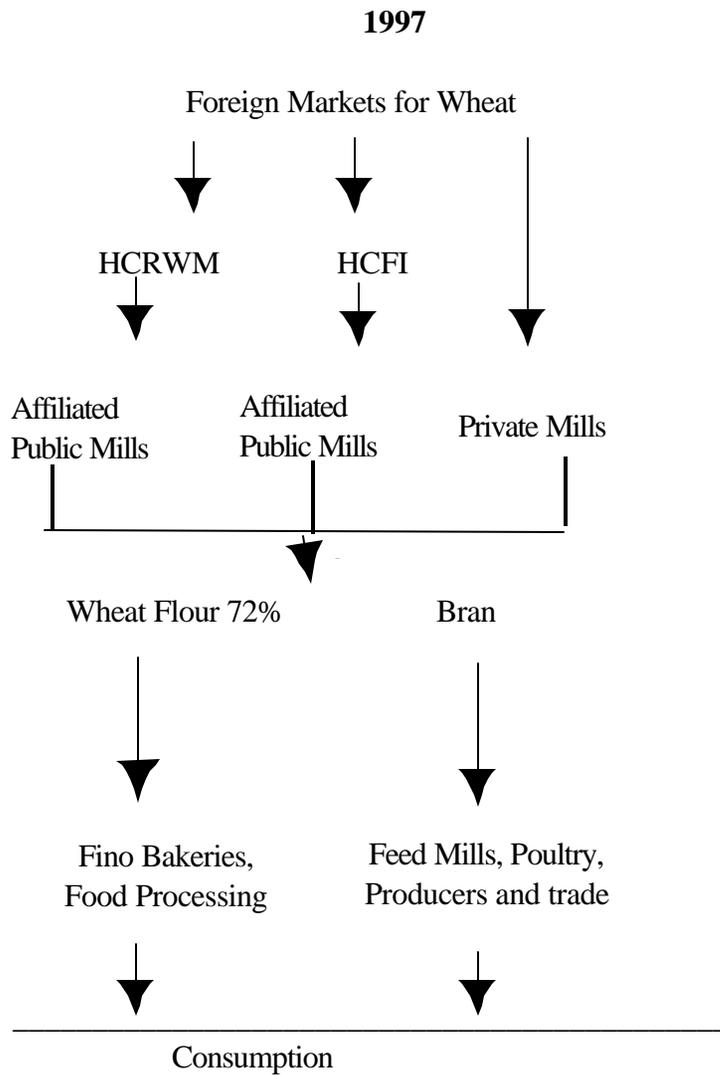
- *Conduct a study of wheat marketing and milling aimed at increasing private sector participation in this business. (Tranche 1)*

Here again, this benchmark was in support of an already announced policy change. As noted above, there has been dramatic progress in increasing private sector participation in wheat flour milling with all of the increase occurring 72-percent flour production. The two key issues now are the large role of public milling companies in 72-percent flour production and the low milling margins set by the Government for 82-percent flour. As will be discussed in the next section, if all hidden subsidies provided to public milling companies were eliminated, the private sector would continue to gain market share in 72-percent flour. There will not be any significant increase in private sector participation in 82-percent flour milling unless milling fees are set in line

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<sup>11</sup> Thus far, exports have been limited to one shipment to Kenya. The country found that importing flour from Egypt was cheaper than milling their own wheat in Kenya.

**Figure 2-2: Wheat Milling Marketing Channels (72%)**



with the full cost of production. In short, the Government could do more, but this will not be possible until the Government makes significant changes in the way it manages the flour subsidy program. The issues involved are discussed further in the remaining sections of this report.

- *Monitor the impact of market liberalization and privatization on food security, income and employment. (Tranche 1)*

If market liberalization and privatization had extended beyond 72-percent flour milling this could have been a significant benchmark. The free markets and private sector growth in the 72-percent flour industry have had a localized positive impact on incomes and employment, but they have not had any measurable impact, either positive or negative, on food security, incomes or employment for the vulnerable population at the national level. As a result, there has been no impact to monitor. There has been no market liberalization or privatization in subsidized flour milling, and farmers are still prohibited from selling any of their wheat outside of rural areas except to the Government at a fixed producer price. The impact of this absence of market forces on the performance of the wheat subsector and recommended reforms are discussed later in this report.

- *Make arrangements to produce at least 50,000 tons of mixed wheat-maize flour at flour mills by the end of 2000. (Tranche 4)*

As discussed above, this benchmark addressed an important issue related to the leakage of subsidized flour to the unsubsidized market. The Government had already decided to add maize flour to the 82-percent wheat flour, but because the two flours were not mixed at the mill, this did little to reduce leakage. The Government easily met the benchmark, but could have done much more. The latest industry figures show that the total quantity of maize flour production in 2002 is expected to be about 800,000 tons, of which only 97,000 tons is being mixed with wheat flour at the mill. In meetings with officials at North Cairo and South Cairo Milling Companies, the study team was informed that new mills equipped with blending machines would be coming on stream this year in these two companies as well as in Upper Egypt. These new mills will more than double the quantity mixed at the mill. If this progress continues, this benchmark will have had a significant impact on the subsidized flour segment of the wheat subsector.

## **2.6 Conclusion**

Despite the structural changes discussed in this section, the basic structure of the wheat subsector remains the same. The subsector remains characterized by three distinct markets: the subsidized flour market, where the Government is the only buyer; 72-percent flour market, where the flour is sold on the open market; and the rural market where much of the wheat is consumed by farm households or sold to other rural households. The need to keep the 82-percent flour market totally separate from the other two means that there are almost no unregulated ties between the three markets. As will be seen in the following sections, this has important adverse consequences for the conduct and performance of the overall wheat subsector.

### 3. CONDUCT OF WHEAT MILLING AND TRADE

The context within which firms operate in the wheat subsector in Egypt is defined by the dominant role of the Government. Because wheat is the basic staple food for Egyptians, the Government's primary policy objective is to assure that there will always be adequate supplies of wheat flour and bread at affordable prices. To this end, it controls the *baladi* bread production chain, first by controlling the supply of wheat to the mills, second, by using public sector mills for 90 percent of flour production, and, third, by licencing and monitoring all *baladi* bread bakeries and subsidized flour warehouses. This effectively isolates the subsidized flour market from all market forces. In implementing its subsidized wheat flour program, the Government is under constant budget constraints. As a result, wheat producer prices are left unchanged for years at a time, as are milling, baking and retailing margins.

How wheat subsector firms have responded to this centrally-planned, budget-driven situation over the last three years depends on whether they are in the public sector, the formal private sector, or the informal rural sector.

#### 3.1 Public Sector Firms

##### 3.1.1 GASC

GASC is the primary implementing agency for the Government's wheat subsidy program. It is basically a government bureaucracy accountable to MSHT. Its task is to procure imported or domestic wheat for use in 82-percent flour, deliver it to the mills, negotiate milling fees, oversee the milling and sell the flour to bakeries and flour warehouses. These responsibilities have not changed since the baseline study was carried out, but the level of activity has declined somewhat. As can be seen from Table 6, deliveries of 82-percent flour to bakeries and flour warehouses declined from 4.7 million tons to 4.2 million tons between 1997 and 2001, a drop of 10 percent. It will be noted that all of the decline is in deliveries to flour warehouses, which are located mostly in rural areas. Table 7 shows that GASC combined purchases of imported and domestic wheat and white maize have declined much more than deliveries.<sup>12</sup> Table 7 also shows that there has been a definite shift from imported wheat to domestic wheat and maize in the production of subsidized flour. As will be discussed in greater detail in the section on the rural sector, supply constraints in the domestic wheat market and the low producer price will make it difficult for the Government to continue this trend. The U.S. Agricultural Attache report referred to above estimates that in 2001/2002 wheat production dropped by 120,000 tons, GASC domestic purchases dropped by 900,000 tons, and GASC imports increased by one million tons.

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<sup>12</sup> The latest U.S. Agricultural Attache Grain and Feed Annual Report, dated March 5, 2002, reports that GASC purchased 2.8 million tons of domestic wheat and 600,000 tons of domestic maize for the marketing year ended June 2001. These figures would be more in line with reported 10 percent drop in deliveries to *baladi* bakeries and flour warehouses, but would be inconsistent with the detailed GASC wheat purchase data shown in Statistical Annex Table 9. What appears clear, however, is that deliveries of subsidized bread and flour to consumers are declining.

**Table 3-1: GASC Deliveries of Subsidized Flour to Bakeries and Warehouses****(000 Tons)**

Region	1997			2000		
	Bakeries	Warehouses	Total	Bakeries	Warehouses	Total
Metropolitan	1190	16	1206	1101	62	1163
Mid and West Delta	659	260	919	733	80	813
East Delta	443	66	509	477	19	496
Middle Egypt	850	307	1157	913	178	1091
Upper Egypt	226	576	802	257	343	600
Frontier	56	32	88	35	32	67
<b>Total</b>	<b>3424</b>	<b>1257</b>	<b>4681</b>	<b>3516</b>	<b>714</b>	<b>4230</b>

Source: Statistical Annex Table 7.

**Table 3-2: GASC Wheat and Maize Purchases for Subsidized Flour****(000 tons)**

Type of purchase	1996/97	2000/2001	% Change
Wheat imports	4,768	1,700	- 64.3
Domestic wheat	980	2,013	105.4
Domestic maize	188	500	166.0
<b>Total</b>	<b>5,936</b>	<b>4,213</b>	<b>-29.0</b>

Source: MSHT unpublished data for domestic purchases, and U. S. Agricultural Attache Reports for imports.

### 3.1.2 Public Sector Mills

The main activity of public sector mills is to produce subsidized flour for a fee. This accounts for 70 percent of their total milling capacity and 85 percent of their total production. 110 public sector mills produce subsidized flour. These mills make no decisions regarding wheat purchases or markets for their product, nor do the seven companies that own them. The mills are responsible for managing day to day operations; and the seven milling companies are responsible for negotiating quantities and milling margins for each mill and for making long-term decisions regarding modernization and capacity building. The milling companies are constrained by having too many employees and continually having to respond to politically motivated government directives. Since their main activity is to produce flour for the Government, they do not operate in a free market and therefore have no need for market-based strategic plans.

The seven milling companies also produce 72-percent flour. This accounts for 15 percent of their total production and about 40 percent of total 72-percent flour production. This flour is produced for the open market in competition with private sector mills. Production and marketing decisions are made by the seven milling companies under the overall direction of the HCFI. The milling companies manage

wheat imports, production lines and inventory in their mills and make decisions relating to production capacity, technology, storage facilities and transportation equipment, but have little control over the labor force. How these companies compete with the growing private sector in the 72-percent flour market depends equally on the quality of management and government directives. It appears that they have not been able to respond to market signals as quickly or aggressively as the private sector. As a result, they tend to compete on price rather than quality, product differentiation, and customer service. Some companies are doing better than others. North Cairo Mills, which has invested the most in new cylinder mills and storage, is viewed by the milling industry as the top performer among the public sector milling companies.

As noted in the previous section, with public mills operating at 50 percent of capacity, the public milling companies have had no reason to invest in increased capacity. There is some question, however, whether the lack of change in public productive capacity was planned by the Government as part of its announced policy of letting the private sector dominate 72-percent flour production or whether it is simply the combined result of individual company business decisions. (For example, North Cairo shifted 300 tons of daily productive capacity from 72-percent to 82-percent flour despite the fact that 72-percent flour is profitable and 82-percent flour is not.) The rationale for investment decisions in the public sector becomes even less clear when one observes that, despite the large excess capacity in the industry, HCFI invested in two of the new private mills that became operational in 2001.

Ambiguity in government policy has been repeatedly mentioned as one of the main reasons, if not the main reason, behind discouraging foreign investment in Egypt. Not knowing what the Government is planning to do creates a general atmosphere of uncertainty that not only discourages investments but also confuses existing investments thus leading to overall inefficiency. Governmental policies related to the wheat subsector, and particularly milling, are vivid manifestations of the ambiguity that leads to confusion in the whole wheat subsector. For instance, public milling companies cannot decide in advance which of their mills to direct to 72-percent wheat flour production because this depends on the quota allocated to them by GASC for the production of 82-percent wheat flour production. Also, no one knows whether the Government is going to enforce the deadline for stone mill conversions by the end of 2002. If the deadline is enforced, most private mills producing 82-percent flour will close down rather than upgrade. Some public milling companies might even lose their quotas for the same reason. This means a bigger burden on the other public milling companies and overall confusion in the milling industry not only for 82-percent flour but also for 72-percent flour.

Evidence of haphazardness in government policies is also witnessed in sudden ministerial decrees or actions taken by HCFI, which are either triggered by external shocks or simply have no logical explanation. The reaction of HCFI to the devaluation of the Egyptian pound and the dollar shortage problem is one example. Another is the 1995 ministerial decree prohibiting the sale of domestic wheat for anything but 82-percent flour. A third example is the decision of the HCFI to establish two new private mills for the production of 72-percent wheat flour at a time when the 72-percent milling sector is suffering from a serious excess capacity problem.

The change in the institutional framework of public milling companies discussed in the previous section had important positive implications on the conduct of public mills. For starters, at least theoretically,

combining all seven public milling companies into the same holding company has the advantage of allowing for economies of scale, especially in wheat purchases. A similar improvement occurs in the availability of PCSS with its storage facilities for all seven companies. Prior to 1998 the two public mills under HCFI had to build new silos and rent others to meet their demand for storage which was a misallocation of resources (Abdel-Latif, 1998). The two public milling companies under HCFI hired the services of the Arab Company for Shipping and Emptying<sup>13</sup> to handle all port clearance requirements because they had no access to PCSS<sup>14</sup>.

The other interesting development is that public milling companies have started importing through private traders instead of directly or through HCFI. It was never illegal for private traders to import wheat on their own but, prior to 1998, milling companies used to handle their needs directly. Preferring to import through private traders rather than through HCFI only implies that the price of wheat procured through HCFI is higher than that of traders. Given the savings to be obtained from large purchases, the only possible explanation for such behavior is that HCFI lacks efficiency in the way it handles its wheat purchase or the hierarchy of committees involved puts a mark-up on wheat prices that individual public mills end up paying.

There is an implicit positive aspect to public milling companies' using the services of private traders and that is the flexibility to use the services of the private sector or simply use the lowest price services wherever they are found. Prior to 1998, public milling companies were implicitly required to use the services of another public company even if they were not necessarily the cheapest. The option to use private services has already yielded benefits. According to the HCFI, the cost of shipping and handling from the port to the mill has dropped from an average of LE 20 per ton three years ago to LE 11 per ton today. Although public milling companies are not using private services to any large extent, whenever the fees of these private firms drop significantly below those of the public shipping companies, the milling companies reportedly negotiate price reductions.

HCFI, however, exerts strong pressure on the public milling companies not to use private sector services. It has been observed that the seven public milling companies have no choice but to use the services of PCSS, which is known to charge higher prices than private firms. Also, the denial of HCFI of the possibility that some of its public milling companies could prefer to purchase wheat imported by private traders to that imported through the holding company clearly manifests how binding the unwritten agreement of public/public mutual reliance is<sup>15</sup>.

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<sup>13</sup> The Arab Company for Shipping and Emptying is another public company affiliated to the Holding Company for Maritime.

<sup>14</sup> Though PCSS has repeatedly been criticized for its poor services and high prices (Abdel-Latif, 1999), the fact remains at least theoretically the availability of its services and storage facilities for all seven public milling companies and not just five of them is an improvement in the system.

<sup>15</sup>It was observed that some public companies routinely purchase wheat for 72-percent through private traders rather than through HCFI, but this was denied by HCFI as being incorrect. HCFI maintains that, in these few instances when this might have occurred it was because there was a temporary shortage of wheat due to late deliveries from HCFI.

### 3.1.3 Baladi Bread Bakeries and Subsidized Flour Warehouses

These firms are privately owned, but they are included here because they operate under total government control. They have no flexibility in what they produce or how much, nor in their baking and retail margins. These are set by the Government. Their sole objective is to minimize operating costs.

Since the retail price for *baladi* bread and 82-percent flour has not changed since 1991, bakeries and flour warehouses are making ends meet by leaking some 82-percent flour into the 72-percent market. Unofficial MSHT estimates of 82-percent flour leakage range from 30 to 45 percent, but there is no data to support these figures. With the recent currency devaluation and the resulting increase in the cost of 72-percent flour, the incentive for leakage has increased<sup>16</sup>. Lines at the outlets have been getting longer, which would be consistent with the likely increased leakage. Reduced consumption of *baladi* bread has been accompanied by a substantial increase in the consumption of higher priced “special” *baladi* bread, made with 72-percent flour and sold for P25 per loaf. It should be noted that, if the Government succeeds in having all of the 82-percent flour mixed with maize at the mill, the leakage option will have been eliminated and adjustments will have to be made in the baking and retail margins for these subsidized flour outlets to continue operating.

### 3.2 Private Sector Industrial Mills

The driving force for private mills is the 72-percent flour market. Statistical Annex Table 4 shows that, in 1997, there were eight private sector mills with a total capacity of 750,000 tons per year. By 2001, there were 30 mills with an annual capacity of 3.1 million tons. These mills are highly market oriented. They combine their wheat imports to achieve economical 50,000 ton shipments and are constantly upgrading their mills to meet customer needs. This includes increasing capacity; installing blending machines, and investing in storage facilities to prevent disruptions in wheat supplies. These firms compete primarily on quality, product differentiation and customer service, and much less on price. As a result, they have increased market share relative to public sector firms while receiving higher prices for their products. They are also very aware of economies of scale. Very few mills have less than 500 ton per day capacity, and some are aiming for 1,000 tons per day.

The large private sector investment in 72-percent milling is a natural outcome of the situation that existed in 1996, when private firms were allowed to produce and sell 72-percent flour. At that time all of the productive capacity was in the public sector, so if private firms wanted to enter the market they had to construct their own mills, even if there was already existing excess capacity. Later, new investors entered the market and existing mills expanded to achieve economies of scale. Currently, production capacity totals about 5 million tons, compared to estimated 72-percent flour consumption of 2.5 million tons.

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<sup>16</sup> In 1998, IFPRI calculated that a *baladi* bakery earned about LE 12 per 100 kg., of which LE 7.5 was returns to family labor. Today, sifting 82-percent flour to 72-percent and selling it on the open market can yield LE 50 to 75 per 100 kg.

As noted in the previous section, private sector mills also produce subsidized flour for the Government under exactly the same arrangements as the public sector mills. The mills are small, old and all paid for. These firms produce subsidized flour as long as the milling margin offered by the Government exceeds variable costs. Otherwise, they have the option of simply closing the mill. Since 1997, the private sector share of subsidized flour production has dropped from 14 percent to less than 10 percent. With the requirement that mills producing subsidized flour upgrade to new cylinder mills, the percentage is likely to drop further. Despite its large size, the subsidized flour market is not perceived by the private sector as profitable, mainly because the Government's constant budget problems mean that milling margins will always be too low to generate acceptable profits and returns on investment. Thus, the private sector is effectively excluded from a very significant segment of the Egyptian economy.<sup>17</sup>

The behavior of private sector firms in upgrading stone mills to cylinder mills contrasts sharply with that of the public sector firms. The new cylinder mills require a large initial capital outlay, and existing milling fees for subsidized flour do not provide a return on investment equal to the opportunity cost of capital. The private mills are deciding not to invest and, if given the choice, the public milling companies would almost certainly do likewise. At a minimum, this implies that milling fees should be raised in order to make the milling of subsidized flour viable over the long term. One way of doing this would be for the Government to simply set higher fees, but a better way would be to replace the present negotiated milling fee system with a system of open tenders. This would assure that mills would receive milling fees that reflected their full costs of production, including an adequate return on investment. If the Government had an open tender system for subsidized flour, the 72-percent excess capacity problem would be much less serious. The private sector 72-percent flour mills that are now operating at 30 percent capacity or less would be in a position to respond very competitively to these tenders, thus utilizing part of the existing 72-percent excess capacity to produce 82-percent flour.

### **3.3 Rural Producers and Millers**

Statistical Annex Table 9 shows wheat production in 1997 and 2001, by governorate. The geographic distribution of production has remained stable: lower Egypt, 50 percent; middle Egypt, 22 percent; upper Egypt, 17 percent; and the desert governorates and new lands, 10 percent.

As noted in the previous section, the only market for domestic wheat outside of the rural areas is for 82-percent flour. As can be seen from Table 3-3, these purchases have grown rapidly since the baseline study was carried out, increasing from 980,000 tons in 1997 to 2.0 million tons in 2001. In lower Egypt, these purchases accounted for 38 percent of total production and in Middle Egypt, 45 percent. Wheat is clearly an important cash crop in both of these regions. Table 3-3 also shows that the quantity of domestic wheat available for rural consumption declined by 500,000 tons between 1997 and 2001. In addition, Table 3-1 above shows that GASC deliveries of subsidized flour to flour warehouses, most of which are in rural areas, declined by 550,000 tons over the same period. Further research is needed

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<sup>17</sup> It should be noted that, as discussed above in the section of wheat-maize mixing, six private milling companies have recently invested in new technologies for subsidized flour production on a very small scale. Although these investments are obviously unprofitable at the present time, the companies may be positioning themselves to benefit from a shift in government policy to full cost pricing, which many observers feel the Government will be forced to do in the not too distant future if milling companies producing subsidized flour are to survive.

to explain why farmers are selling more wheat to GASC when the purchase price is not going up, even in nominal terms. No data is available on how rural eating habits are changing, in response to the reduced availability of wheat flour, but there are signs that total demand for domestic wheat is exceeding supply. In 2001, MSHT set a procurement target of three million tons but was only able to purchase two million tons. For 2002, the producer price has been increased from LE 95 to LE 100 per ardeb, the first price increase since 1995.

An additional factor is the recent increase in the exchange rate and the resulting 30 percent increase in the price of imported wheat. Not only does this increase the incentive to rely more on domestic wheat for 82-percent flour, it also increases the pressure to make domestic wheat available to the 72-percent flour mills. In a totally free market, these market forces would lead to increased demand for domestic wheat, higher producer prices and increased wheat production. With the existing controls in place, the 72-percent flour mills will not have access to domestic wheat and the Government will not increase the producer price to reflect world prices, and the area planted to wheat will not increase as much as it would have in a free market situation.

Farmers are now also selling white maize to GASC for the subsidized flour program. Table 3-4 shows that GASC maize purchases have increased from 188,000 tons in 1997 to 501,000 in 2001, an increase of 66 percent. Egypt produced a record 6.3 million tons of maize in 2000, of which 97 percent was white maize. This represented a 10 percent increase over 1999, and a 6.7 percent increase over 1998, the previous record year. The target is for all *baladi* bread to be made from the 80:20 wheat-maize mix. If total consumption of *baladi* flour stabilizes at six million tons in grain equivalents, this would imply a total demand of 1.2 million tons of maize for the subsidized flour. Thus far, the Government has not experienced any procurement problems. In 2001, with a producer price of LE 80 per ardeb, the Government was able to meet its 500,000 ton target.

**Table 3-3: Wheat Production and Deliveries to GASC, by Region**

(000 tons)

Region	1997				2001			
	Production		Deliveries		Production		Deliveries	
	Quant.	%*	Quant.	%**	Quant.	%*	Quant.	%**
Lower Egypt	2,900	50	492.5	17.0	3,300	52	1,265	38.3
Middle Egypt	1,300	22	427.4	32.9	1,400	22	633	45.2
Upper Egypt	1,000	17	60.2	6.0	1,100	17	88	8.0
New Lands	600	10	-	-	500	8	27	5.4
Total	5,800	100	980.1	16.9	6,300	100	2,013	32.0

\* Percentage of national production.

\*\* Percentage of regional production.

Source: MSHT unpublished data for deliveries and MALR Annual Production Reports for production.

**Table 3-4: White Maize Production and Deliveries to GASC****(000 tons)**

Region	1997			2001		
	Production*	Deliveries	%	Production*	Deliveries	%
Lower Egypt	3,017	98.8	3.3	3,417	328.9	9.6
Middle Egypt	1,768	50.2	2.8	1,848	64.4	3.5
Upper Egypt	841	38.8	4.6	780	108.4	13.9
Total	5,626	188.0	3.3	6,046	501.7	8.3

\* Old lands only. There is very little production in the new lands.

Source: MSHT unpublished data for deliveries and MALR Annual Production Reports for production.

### 3.4 The Impact of the Currency Devaluation

Recently Egypt has been witnessing serious confusion in its foreign exchange market. The origins of the problem go back to 1997 when external reasons such as the Southeast Asian crisis, the drop in oil prices and tourism revenues all led a sharp decline in Egypt's foreign exchange revenues. Mismanagement of the dollar crisis situation by the Central Bank of Egypt, especially in the year 2001, accentuated the dollar shortage problem and led to a series of devaluations of the Egyptian pound. Even following the latest formal sharp devaluation of the Egyptian pound, the dollar shortage problem continues and a black market where the exchange rate is far higher than the official one still exists.

While the sharp formal and informal devaluation of the Egyptian pound has had an impact on the whole Egyptian economy, its impact has been particularly strong on the wheat subsector and especially the wheat milling industry. The sharp division of wheat milling into 82-percent and 72-percent flour aggravated the negative impact of the devaluation, and illustrates the many inefficiencies that are caused by the Government's pervasive controls of the subsector.

The most direct effect of the devaluation is that wheat imports are more expensive for the private and public sector alike. This has had a particularly serious effect on the 72-percent flour milling industry, which depends entirely on imported wheat. Public and private millers will both pay more in Egyptian pounds for their imported wheat, which immediately means more expensive wheat flour and bread prices to be paid by the consumer. This assumes, however, that public and private millers are on equal footing in facing the pressure of the dollar shortage problem and devaluation of the Egyptian pound. Should public milling companies receive any kind of support from the HCFI, the competitive balance between the public and private sectors will be seriously disturbed in favor of the public milling companies. For instance, if public milling companies are able to obtain their foreign exchange through HCFI at the official rate while private millers purchase their dollars from the market, typically at higher than the official exchange rate, then immediately private millers are at a disadvantage. Because they obtain dollars at a lower price, public milling companies can sell their final product at lower prices than private milling companies thus increasing their market share in an already limited oligopolistic market setting.

The devaluation is also affecting the technology updating for 82-percent wheat flour production. Since imported cylinder and disk mills meant to replace the stone mills also become more expensive, it is very likely that millers are discouraged even more from complying with the deadline set by MSHT. Any delay in the execution of the technology updating means a delay in the mixing of wheat flour and maize flour in the mills. The latter in its turn means a continuation of smuggling of wheat flour away from 82-percent flour towards 72-percent flour production. In fact, with the devaluation of the Egyptian pound and the continuing dollar shortage the smuggling is likely to increase even more now that the gap between the prices of 82-percent and 72-percent flour is even wider<sup>18</sup>. If increased smuggling is added to the increased cost of the subsidy paid by the Government as a result of the devaluation of the Egyptian pound, then the important question of who is really benefitting from the subsidy cannot be avoided.

It is also expected that domestic wheat procurement for the subsidized flour program will fall even more below its target as private millers now have a motive to offer farmers higher prices than official procurement price. Though such transactions would be illegal according to Ministerial Decree No. 150 of April 1996, once again the savings achieved by buying the domestic wheat instead of the imported wheat are high enough to cover for the risk of going against the law.

Though all of the above is presented by way of analyzing possible scenarios of repercussions of the devaluation of the Egyptian pound and the dollar shortage problems, signs of trouble are already beginning to emerge in the wheat milling sector. According to the U.S. Agricultural Attache *Egypt Feed and Grain Report - 2002*, public and private milling companies are cutting back on 72-percent flour production because they can't afford to purchase imported wheat or are unable to obtain foreign exchange. A more alarming sign of trouble is a serious disturbance to the competitive balance of public and private mills as the HCFI actually helped its affiliated milling companies to obtain their dollar needs at the official price of L.E.4.6 for the dollar on January 2002 when private millers could only get it from the market at the price of L.E. 5.35 for the dollar. What is of importance here is not the incident, which puts private millers at a disadvantage, as much as the willingness of the Government to intervene to support public milling companies at the first sign of trouble. This is a serious step backwards in the Government's announced policy of allowing free competition in 72-percent wheat flour production with absolutely no interference on its part. Ideally all of 72-percent wheat flour production should be private. If that is not possible because public milling companies need profits from 72-percent flour to subsidize their production of 82-percent flour, at least the Government shouldn't interfere in the operation of the milling industry.

### **3.5 Conclusion**

Firm behavior in the wheat subsector varies depending on exposure to market forces. Public sector milling companies are continuing to accept milling fees that do not cover costs and are the furthest along in converting their stone mills to cylinder mills for 82-percent flour production. Conversely, private sector mills are investing heavily in 72-percent flour production and, with a few exceptions, are phasing out of 82-percent flour. Private sector firms are also upgrading their mills to produce products that

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<sup>18</sup> The gap is wider because while the price of 72-percent wheat flour is going up, the Government keeps the 82-percent wheat flour price unchanged.

better meet their customers' needs. However, as frequently occurs in free markets, private investment has resulted in substantial excess capacity as new investors seek the high profits earned by 72-percent flour milling companies in the late 1990s. Farmers are selling increasing quantities to GASC for 82-percent flour and are retaining less for home consumption, despite the producer price not having gone up in over five years. Overall, the firms operating in the least regulated markets, i.e., private mills producing 72-percent flour, have been the most vibrant. Throughout the subsector, however, government restrictions are distorting markets, causing firms to make sub-optimal decisions and adversely affecting overall subsector performance.

## 4. PERFORMANCE OF THE WHEAT SUBSECTOR

The performance of the milling subsector is influenced by its structure and conduct as well as by any internal or external shocks to the Egyptian economy not necessarily related to the milling sector or even the wheat sector. This section analyzes how these internal and external factors have affected subsector performance in the three years since the baseline study was carried out. Performance will be assessed based on four criteria: efficiency of resource use, profitability, the ability to cope with external shocks, and market efficiency. There is an almost total lack of recent data on performance, either at the firm or subsector level, but by analyzing market conditions and firm behavior it is possible to arrive at defensible conclusions regarding each of the four criteria.

### 4.1 Efficient Use of Resources

When assessing the efficiency of resource use in the wheat subsector since 1997, the first and most important indicator to be observed is private sector investments in 72-percent wheat milling. Private sector investments in 1997 and 1998 came as a response to the huge profits achieved when renting public mills in the period from 1993 to 1996. It had clear potential profitability as motivation for investment and is therefore considered an efficient use of resources even though the huge wave of new investments led to an excess productive capacity problem. The second wave of private investments starting from 1999, on the other hand, took place despite the confirmed and continuing excess capacity problem in 72-percent flour production. To what extent can these new investments be described as efficient use of resources? The answer to the question lies in the extent to which these investments foresee any profit opportunities. The expansion of productive capacity by private milling companies already operating in the milling industry in 1997 and 1998 can be seen as an efficient uses of resources. The investments were made in response to increased demand for high quality flour in specific flour markets, different from the market for generic 72-percent wheat flour where the excess capacity problem is clearly observed. Unfortunately, these private sector investments, which can be called “informed investments,” do not represent more than 24 percent of total new private sector investments in the milling industry. The remaining 76 percent, i.e., the “uninformed” investments, are simply investments based on rumors and imaginary expectations of future profits due in large part to the ambiguity of governmental policies dealing with the 72-percent wheat flour industry. While the informed investments led to increased productivity, the uninformed ones aggravated an already existing excess capacity problem.

Another indicator of inefficient use of resources lies in public sector investments in 82-percent wheat flour milling despite negative returns. With fixed milling fees set far below full milling costs, and investments born fully by individual milling companies, a profit-oriented company would not go through with the conversion from stone mills to cylinder mills. In fact, this seems to be exactly the attitude of private mills. The only reason public milling companies are going through with the investments is because they do not have the freedom of refusing because of their public nature. Despite their new business orientation starting from 1991 public sector companies remain subject to pressure by the Government especially in what concerns sensitive products such as subsidized 82-percent wheat flour.

Inefficiency is also observed in the significant leakage away from subsidized 82-percent flour to 72-percent flour. The unchanging low baking fee, the high difference in price between 82-percent wheat flour and 72-percent wheat flour and the wheat-maize flour mixing in bakeries instead of inside the mills all contribute to the leakage problem. The leakage is an inefficient use of resources because it is directing resources away from their original use. It is a waste of the resources originally allocated to subsidy. The leakage problem was witnessed before 1997 so it is not a new phenomenon. What is new following 1997 and is continuing until now is the significant increase in the problem. The continuous increase in leakage from one year to the other implies that the rent achieved from the illegal activity is also continuously increasing and that it far exceeds the risk or the punishment of being caught. For instance, the fixed baking fee becomes a stronger motivation for illegal activities as it remains fixed and inflation in the economy increases. Also, the gap between the 72-percent and 82-percent wheat flour prices is not fixed because 72-percent flour prices depend on the price of imported wheat and on the exchange rate.

GASC decisions to import wheat before and after 1997 have always involved inefficient use of resources. They are not based on a systematic comparison of relative costs of domestic and international wheat. Instead they seem to be almost completely separate. Wheat imports are more influenced by international market conditions than by local market conditions. The new observed trend of decreasing wheat imports and increasing domestic wheat procurement occurs with a time lag and not in a timely fashion. For instance, high wheat procurement this year could lead to lower imports of wheat the following year. However, the decision to import in any particular year never takes into account potential domestic wheat procurement in the same year. With imprecise estimates of production and relatively fixed procurement prices, wheat importation cannot be handled in an efficient manner. The only change following 1997 in the above described system is the change of GASC leadership in 1998. There is no evidence, however, to indicate an improvement in the import system following the change.

Last but not least, inefficient use of resources is also observed in the prevention of milling companies from buying domestic wheat for the production of 72-percent wheat flour. This restriction goes back to 1995 and continues to date. With the increase in exchange rate, milling companies are forced to import wheat at higher cost than necessary when savings could be achieved if they were allowed to legally purchase domestic wheat. The act also leads to illegal activities that become more and more tempting as the gap between the price of domestic wheat and the price of imported wheat widens.

#### **4.2 The Profitability of Public and Private Milling Companies**

Though detailed information on profits achieved by public and private milling companies are not available for analysis, logical conclusions can still be drawn with a reasonable degree of certainty. For instance, the profitability of public milling companies, if existing at all, is generally quite limited. The companies' main sources of profit are 72-percent wheat flour production and additional activities such as rental of their storage facilities and transportation fleets. Profits achieved through these activities cover for the losses realized on the 82-percent wheat flour production due to the low milling fee.

A distinction has to be made, however, between 82-percent wheat flour produced in stone mills and that produced in cylinder mills. Stone mills can still be profitable to a certain extent, despite the low milling

fee, because the book value of the equipment used is zero, so only variable costs are taken into consideration. Cylinder mills, on the other hand, necessarily operate at a loss because of the unrealistic low milling fee forced upon the milling companies by the MSHT.

A final observation concerning public milling companies is that any estimates of profits on their part have to be studied very carefully as they tend to be exaggerated. Profit calculations in public sector facilities are often based mainly on variable costs, i.e. partially or fully ignoring fixed costs. If assessed as private companies, profits would likely be considerably lower. Also, given the excess supply problem in the market for 72-percent wheat flour, profitability in this line of production really differs from one public company to another depending on the company's ability to capture a share of the local market.

The same argument for 72-percent wheat flour applies in the case of private milling companies. Profitability from the activity depends on whether the owners belong to the "informed" or "uninformed" group. A general conclusion on the profitability of private milling companies in 72-percent flour cannot be reached. What can be mentioned with certainty is that private mills do make profits on 82-percent flour production in stone mills despite the low milling fee again because only variable costs count when this technology is used. They are likely to incur losses, however, on 82-percent flour production using cylinder mills and that is the reason why they do not want to upgrade their technical facilities as decreed by the Ministry.

Although not central to subsector performance, it should be noted that village mills are continuing to struggle. These mills operate seasonally and are barely breaking even. This reflects a general stagnation in the rural sector and the overall low purchasing power of the rural population. There is not enough demand for these mills to invest in modern technologies or consolidate to achieve economies of scale. These types of changes will not happen until the rural sector of the economy experiences sustained growth in productivity, both in agriculture and outside of agriculture.

### **4.3 The Impact of External Shocks**

Recently Egypt has been witnessing serious confusion in its foreign exchange market. The origins of the problem go back to 1997 when external reasons such as the Southeast Asian crisis, the drop in oil prices and tourism revenues all led a sharp decline in Egypt's foreign exchange revenues. Mismanagement of the dollar crisis situation by the Central Bank of Egypt, especially in the year 2001, accentuated the dollar shortage problem and led to a series of devaluations of the Egyptian pound. Even following the latest formal sharp devaluation of the Egyptian pound (\$1= L.E.4.6), the dollar shortage problem continues and a black market where the exchange rate is far higher than the official one still exists. While the sharp formal and informal devaluation of the Egyptian pound has had an impact on the whole Egyptian economy, its impact has been particularly strong on the wheat subsector and more specifically on the milling industry. The complex structure of the wheat milling industry caused by its division into 82-percent and 72-percent wheat flour production aggravated the negative impact of the devaluation on the sector.

The most direct effect of the devaluation is that wheat imports are more expensive for the private and public sector alike. Public and private millers producing 72-percent flour will pay more in Egyptian pounds for their imported wheat than before which immediately means more expensive wheat flour and

bread prices to be paid by the consumer. Should the cost of imported wheat be too high for millers to pay, then the excess capacity problem discussed above will become even more serious. The above conclusions, however, assume that both public and private millers are on equal footing in facing the pressure of the dollar shortage and devaluation of the Egyptian pound. Should public milling companies receive any kind of support from the HCFI, however, the competitive balance between the public and private companies will be seriously disturbed in favor of the public milling companies. For instance, if public milling companies can meet their foreign exchange needs through HCFI at the official rate while private millers purchase their dollars from the market, typically at higher than the official exchange rate, then immediately private millers are at a disadvantage. Because they pay a lower price for their dollar needs public milling companies can afford to sell their final product at lower prices than private milling companies thus stealing their market share in an already limited oligopolistic market setting.

The technology updating of the 82-percent milling sector is also expected to be affected by the devaluation of the Egyptian pound. Since imported cylinder and disk mills meant to replace the stone mills also become more expensive, it is very likely that millers are discouraged even more from complying with the deadline set by the MSHT. Any delay in the execution of the technology updating means a delay in the mixing of wheat flour and maize flour in the mills. The latter in its turn means a continuation in the smuggling of wheat flour away from 82-percent towards 72-percent production. In fact, with the devaluation of the Egyptian pound and the continuing dollar shortage the smuggling is likely to increase even more now that the gap between the prices of 82-percent wheat flour and 72-percent wheat flour is even wider<sup>19</sup>.

#### **4.4 Market Efficiency**

The market efficiency issues in the wheat subsector are merely a reflection of the pervasive lack of open market forces that has been discussed throughout this report. No new information on the efficiency of markets has been obtained since the IFPRI studies between 1996 and 1998, but the key issue is that the controls over the 82-percent flour market distort the markets throughout the subsector. The following points recap the issues that have been raised with respect to markets:

- The 82-percent flour production and marketing chain is not subject to any market forces. This entire market is not only centrally planned but also totally controlled from the purchase of the wheat by GASC to the final delivery of the bread and flour to the consumer. Government controls, of course, are not fully effective, since there is considerable leakage of subsidized flour into the unsubsidized market. The Government's food security objectives could be more efficiently achieved with greater exposure to open markets at all stages of the production and marketing chain.
- Wheat farmers are totally isolated from all market forces outside of the rural areas. They are free to grow wheat and there are no controls on sales of wheat and wheat flour in rural areas, but the only market outlet outside of the rural areas is GASC, which buys wheat at a fixed price.

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<sup>19</sup> The gap is wider because while the price of 72-percent wheat flour is going up that of the 82-percent wheat flour remains unchanged because it is subsidized.

- The unregulated rural market consists of producing for on-farm consumption or for sale in the local community. Very little wheat moves between governorates or even between districts.
- The markets work best for 72-percent flour but, as has been discussed throughout the report, even here there are distortions related to controls on 82-percent flour. The most important are the large public sector presence in the 72-percent flour market and the inability of private mills to shift between 72-percent and 82-percent flour as market conditions change, because milling fees for 82-percent flour are fixed at unprofitable levels.

The markets in the wheat subsector will not function efficiently until most of the Government controls are removed. This involves two basic changes in policy direction on the part of the Government. First, the subsidized flour program needs to be opened to free market forces instead of centrally planned by the Government, and, second, the seven public milling companies need to be fully privatized and freed from all government interference. If and when these changes are made, the benefits will likely be major and rapid. Specifically, the private milling companies will become more efficient and profitable as the six-million-ton 82-percent flour market would be opened to them; the public milling companies will have to become more efficient and will probably have to be privatized in order to compete with the more market-oriented private sector; wheat farmers will have access to the dynamic 72-percent flour market and will not be constrained by a single producer price in the 82-percent flour market; and, finally, the full cost of the flour subsidy program per beneficiary will be reduced as a result of increased efficiency in the milling industry and reduced leakage of subsidized flour into the open market. The specific policy reforms that are needed to bring this situation about are listed below in the First Best Scenario in the recommendations section.

#### **4.5 Conclusion**

Developments in the wheat sub-sector since 1997 have been mixed. The wheat gap has declined by one million tons. The distribution of subsidized flour to the target population continues to decline despite increased budget outlays (see Statistical Annex Table 7), and more recently there has been a decline in wheat flour consumption in rural areas, as farmers are choosing to sell more wheat to GASC and deliveries of subsidized flour to rural flour warehouses are declining. On the positive side, consumption of 72-percent flour has increased significantly. Production capacity for unregulated 72-percent flour has increased by 91 percent, with all of the increase occurring in the private sector. As a result, the private sector share of total milling capacity (82-percent plus 72-percent) has increased from 19 percent in 1997 to 33 percent in 2001. Although data is not available on profits, it appears that profitability has dropped for both 82-percent flour milling due to the low milling fees and the closing of stone mills, and 72-percent flour due to the large excess capacity and the recent currency devaluation. The overriding fact, however, is that the Government controls the very large 82-percent flour market in ways that adversely affect the entire sub-sector. Producers of 72-percent flour face numerous restrictions not the least of which is their de facto exclusion from the 82-percent flour market. The rural sector is particularly restricted, having only one tightly controlled market outside of the rural area. This overall situation is distorting investment and production decisions throughout the sub-sector, which in turn is causing the sub-sector to be less efficient and productive than it could otherwise be.

## 5. RECOMMENDATIONS

It is clear that the key to improving performance is to reduce government controls on the 82-percent flour market. It is certain that wheat will continue to be of high strategic importance for Egypt and it is equally certain that the Egyptian Government will not abandon the wheat flour subsidy program. The objective of a reform package should be to introduce free market forces, while at the same time increasing the efficiency and benefits of the subsidy program.

There are two possible approaches. The first, which we call the First Best Scenario, would be to replace the present centrally planned food security program with one achieving the same food security objective but based largely on market forces. The Second Best Scenario assumes that the Government is not ready to relinquish its control of the subsidized flour market. Under this scenario, the subsidized flour program continues to be centrally planned but with basic changes to improve its performance and reduce its negative impact on the 72-percent flour market and the entire wheat subsector.

### 5.1 First Best Scenario<sup>20</sup>

#### 1. *Move to a Tender System for the Production of Subsidized Flour.*

This would replace the present system of setting the milling fee and the quantity to be milled for each mill on a case by case basis. Under the new system, the Government would announce a tender for the delivery of a specific quantity of flour to a specified location. Any mill would be allowed to bid, even if it wasn't located in the governorate where the flour was to be delivered. There would be no restrictions on where mills obtained their wheat or their ability to transport flour across governorates or regions. Mills could even be given the option of bidding on all or only part of the total quantity to be delivered. This would introduce competition in the subsidized flour market. Mills would bid strictly on the minimum they would be prepared to earn per ton of production. This would open up this very large market to the private sector and would provide all mills with an incentive to become more efficient in the production of the subsidized wheat-maize mix.

An alternative approach would be to issue tenders only for the milling. Under this approach, GASC would continue to control the entire production and marketing chain, but the milling fee would be determined by competition rather than set by the Government. This would be a less beneficial approach because none of the activities upstream or downstream from the milling would be open to competition.

From the standpoint of the Government, the main disadvantage of a tender system would be that it could no longer control the delivered price of the subsidized flour. A second disadvantage is that the milling

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<sup>20</sup> These recommendations are not new, nor are they exhaustive. The IFPRI studies that were carried out under the USAID-funded Food Security Research Project included these recommendations as well as many others aimed at improving the Government's food security system. Tyner et al also made similar recommendations in the *Wheat Subsector Baseline Study*. They are as valid now as they were then. Until the Government addresses these issues in a serious and determined manner this important sector of the Egyptian economy will not achieve its full potential.

fees will certainly increase, which means that the explicit subsidy will also increase. The direct advantage is that competition would drive down the delivered cost of the flour, which means that the total per ton cost (implicit plus explicit) of the subsidy to the Government would be less. The indirect, but in economic terms more significant, advantage is that a very large subsector of the Egyptian economy will have become significantly more efficient. These two advantages would both be greater under the first tendering approach than the second.

2. *Fully Privatize the Public Milling Companies.*

For the tender system to have its full desired effect, the public milling companies would have to be fully privatized. With these companies now accounting for 90 percent of total subsidized flour production, there can be no assurance that the bidding would truly be open and competitive. A second, more important, reason for privatization is to remove a major obstacle to full and open competition in the 72-percent flour market. As noted throughout the report, the large public sector presence is a constant threat to private sector milling companies, increasing their risks and distorting their decision making.

3. *Use a Price Band or Dual Tariff System Combined with a Floor Producer Price to Link the Domestic and World Wheat Markets While Maintaining Price Stability for the Farmers.*

The Government's total control of the wheat market outside of rural areas unnecessarily isolates farmers from market forces. A more appropriate policy would be for the Government to focus on stabilizing the domestic wheat price by setting a floor producer price and letting the price move above that level when world prices increase. This can be achieved by specifying a world price at which the import duty will be zero, and set up a system of tariffs that will go into effect when world prices drop below that level. For example, if the floor price were set at LE 100 per ardeb this would convert to a CIF price of \$145 per ton at the present exchange rate of LE 4.6 to the U.S. dollar. Under the system proposed here, if the exchange rate or the world price were to increase, the producer price would be allowed to rise according to what buyers would be willing to pay. If the world price were to drop below \$145, tariffs would go into effect to assure that the border price remained at \$145.

4. *Open the 72-percent Flour Market to Domestic Wheat Producers.*

This complements and completes the link between domestic and world wheat markets that is established in the previous recommendation.

5. *Fully and Expeditiously Implement the Wheat-Maize Mix for the Subsidized Flour Program.*

As discussed in the structure section of the report, this is necessary to control the leakage from the subsidized to the unsubsidized markets. The program is already well underway but will not have its desired effect until all of the wheat and maize flour is mixed at the mills. Given that *baladi* bakeries and flour warehouses are able to survive only through leakage, the full conversion to a wheat-maize mix will have to be accompanied by appropriate increases in baking and retailing margins.

6. *Restructure the Wheat Flour Subsidy Program to Cut Costs, Reduce Waste, and More Effectively Target the Subsidized Flour to the Intended Beneficiaries.*

This would require replacing the existing program, which is designed to distribute subsidized flour to the entire population, with a program that distributes subsidized flour exclusively to the target population<sup>21</sup>.

## 5.2 Second Best Scenario

Given the major changes in policy that would be required to implement the first best scenario, the study also suggests a second best scenario, consisting of the following six recommendations:

1. *The Full and Rapid Implementation of the Wheat-Maize Mix for the Subsidized Flour Program.*

This recommendation is part of the first best scenario. It is repeated here because it yields immediate benefits and is easily implemented.

2. *Allow Public Milling Companies to Use Private Services.*

Although it is official government policy that government-owned companies are allowed to meet their needs from the lowest cost sources in the local or international markets, there is an unwritten requirement that public enterprises use only the services of other public enterprises when they are available. The public milling companies are no exception. As is clear from the conduct and performance chapters, allowing them to purchase all of their goods and services from the lowest-cost suppliers would increase efficiency and reduce cost.

3. *Reduce Ambiguity and Haphazardness in Government Policy Vis-a-Vis the Public Sector Milling Companies.*

The discussion of public milling companies in the conduct and performance chapters provides numerous examples of haphazard government policies and analyzes their impact, not only on the performance of the public milling companies but on the entire wheat subsector. Increased transparency and serious study of the impact on both public and private milling companies of different moves by the Government in case of external shocks are highly recommended. Implementing this recommendation would reduce confusion in the subsector, improve investment decisions, and increase efficiency, even if nothing else changes.

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<sup>21</sup> See Bouis et al, *The Egyptian Food subsidy System: Impacts on the Poor and an Evaluation of Alternatives for Policy Reforms*, IFPRI 1998, for an in depth analysis of the Government's food subsidy program and detailed recommendations for reforms.

4. *Review the Wheat Flour Subsidy Program and Redefine “Social Responsibility” as it Applies to Public Sector Firms.*

An important recommendation of the study in both its first best and second best solutions is to rationalize the subsidy program. While the first best solution suggests a completely new program, the second best solution settles for improvements in the existing program. The aim of the improvements is to reduce waste and improve the distribution of subsidized flour to the target groups.

How to revise the subsidy program is a question that has more than one answer. In addition to introducing the wheat-maize mix, mentioned above, this study suggests:

- Revising of the geographical distribution of bakeries and warehouses dealing in subsidized flour to make sure that the distribution of the subsidized flour outlets coincides with the geographical distribution of poverty in Egypt;
- Increasing baking margins for *baladi* bread bakeries to increase their income and reduce their motive for leaking subsidized flour away from target populations;
- Reducing corruption by closely assessing the administrative network in charge of the implementation of the subsidy program within MSHT;<sup>22</sup> and
- Putting the entire subsidized flour production chain on a full cost basis, as described in recommendation 6 below, and directing the subsidy to the distribution stage.

It is important to note that making changes in the subsidy program is not a new recommendation. Many previous studies have made the same recommendation<sup>23</sup>. In other words, more important than any detailed suggestions here is to convince the Government that the political sensitivity of the subsidy program should not mean that the program cannot be improved. The aim of the recommended revisions is not to eliminate the subsidy but rather to improve its targeting and even reduce its cost to the Government in the process.

5. *Restrict Public Milling Companies to the Production of Subsidized Flour.*

6. *Take Measures to Bring the Subsidized Flour Milling Fees in Line with Actual Costs*

While each of the first four recommendations can be individually implemented, recommendations 5 and 6 can only be implemented together. Restricting public milling companies to the production of subsidized flour can only be implemented if the milling fee covers the full cost for milling. Public milling companies at the present time rely partly on 72-percent wheat flour production to cover for their losses in 82-percent wheat flour.

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<sup>22</sup> The authors are encouraged to make this particular suggestion because lately the Government has been taking the issue of corruption very seriously and is trying to eliminate its sources.

<sup>23</sup> For example, a recent study by IFPRI suggested a detailed program for revising Egypt’s food subsidy program (Bouis et al., 1997). Unfortunately, the recommendations were never implemented.

If implemented, recommendations 5 and 6 will have the effect of reducing the transaction costs involved in implementing the entire second best scenario. The reason is that the restriction of public milling companies to subsidized flour has an automatic positive impact on the issues addressed by the other components of the second best scenario even if the Government takes no action to directly address those issues.

In the context of the second best scenario, limiting the public sector companies to the production of subsidized flour and bringing milling fees in line with full costs has several advantages. First, it leaves the 72-percent flour market to the competitive, uncontrolled and unsubsidized private sector. Second, it has the effect of more clearly defining “social responsibility.” The Government would not feel obliged to assist public milling companies in the domain of 72-percent flour when shocks hit the wheat subsector<sup>24</sup>. Also, with milling fees reaching full cost levels the social responsibility is clearly passed on to MSHT in its direct relation with consumers instead of being forced onto the public milling companies. Third, the restriction of 72-percent flour to the private sector would clarify the market situation with respect to 72-percent flour, resulting in better private sector investment decisions.

It is finally noted that all of the above recommendations require further study. The most important thing to note, however, is that the willingness to improve the conditions within which the wheat subsector operates is the first.

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<sup>24</sup> See the discussion of external shocks in the performance section of the report.

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## **STATISTICAL ANNEX**

**Table 1: Public Sector Milling Capacity for 82 Percent Flour, 2001**

<b>Name of Company</b>	<b>Coverage</b>	<b>Number of Mills</b>	<b>Capacity (tons/day)</b>	<b>Percent</b>
North Cairo	Greater Cairo	11	2,380	11.6%
South Cairo	Cairo, Giza	15	3,931	19.1%
Alexandria	Alexandria	12	1,595	7.8%
Mid & West Delta	Gharbia, Monoufia, Qalubia, Behaira, Kafr El Sheikh	18	4,033	19.6%
East Delta	Sharkia, Dakahlia, Damietta, Port Said, Ismailia, Suez, No. & So. Sinai	16	2,695	13.1%
Middle Egypt	Menia, Fayoum, Beni Suef, Assiut, El Wadi El Guedid	14	2,802	13.6%
Upper Egypt	Sohag, Qena, Aswan, Red Sea	24	3,099	15.1%
<b>Total</b>		<b>110</b>	<b>20,535</b>	<b>100.0%</b>

Source: MSHT unpublished data.

**Table 2: Private Sector Milling Capacity for 82 Percent Flour, 2001**

<b>Name and Region</b>	<b>Location</b>	<b>(tons/day)</b>
<b><u>Cairo and Giza</u></b>		
Tamwa	Giza	173
Al Zomor	Giza	90
Abou Hashima	Giza	95
Shafeae	Giza	68
Sharaby	Giza	78
Al Daw	Giza	180
Al Gabalawy	Giza	78
Marghouna	Giza	110
Sakara	Giza	50
Shoman & Ghanem **	Giza	225
Al Matahen-Al Hadissa **	Giza	173
<b><u>North Cairo</u></b>		
Al Sharmashergy *	Cairo	140
Al Akhal	Cairo	90
<b><u>Mid &amp; West Delta</u></b>		
Mostorod	Qaluibia	150
Kafr Hamza	Qaluibia	74
Meethalfa *	Qaluibia	150
Talya	Monoufia	54
Al Kholy Ashmoun	Monoufia	87
M. A. Shara Alla *	Monoufia	60
H. Radwan	Qaluibia	40
S. Yassin *	Qaluibia	40
M Abou Oaf	Gharbia	27
Abou El Gheit	Qaluibia	78
<b><u>East Delta</u></b>		
Diab Ghanem	Ismailia	85
Al Itihad	Sharkia	54
Al Akyaby	Sharkia	40
<b><u>Middle Egypt</u></b>		
Atsa	Fayoum	100
Beni Ediat	Assiut	100
<b><u>Upper Egypt</u></b>		
Sobhy Labib	Sohag	45
Nabil Khela **	Sohag	12
Fayez Beshara **	Sohag	13
Azziz Attia	Sohag	60
Soliman ShokrAlla	Sohag	15
<b>Total</b>		<b>2834</b>

\* Upgraded to cylinder

\*\* Will be closing because of the requirement to upgrade.

Source: Grain Industries Chamber - Egyptian Federation of Industries

Note: these capacity figures represent no change from 1997.

**Table 3: Number of Warehouses and Bakeries Distributing Baladi Flour**

Governorate	1997	2001	
	Bakeries	Bakeries	Warehouses
Cairo	1480	1254	0
Sharkia	653	662	180
Dakahlia	640	426	505
Damietta	210	227	375
Portsaid	130	66	5
Ismailia	229	197	276
Suez	97	93	26
Alexandria	860	924	152
Matrouh	83	78	131
Gharbia	491	541	889
Behiera	601	427	2104
Kafr El Sheikh	279	238	704
Menufia	429	553	537
Qalubia	716	799	350
Giza	754	848	1848
Fayoum	276	324	1099
Beni Suef	253	338	129
Menya	840	939	47
Assiut	440	762	1536
New Valley	32	34	36
Suhag	454	529	4120
Qena	290	298	2930
Luxur	25	65	455
Aswan	148	228	1402
Red Sea	72	53	39
North Sinai	185	48	164
South Sinai	26	22	8
<b>Total</b>	<b>10693</b>	<b>10973</b>	<b>20047</b>

Source: MSHT.

Note: The study team was not able to obtain data on the geographic distribution warehouses in 1997 during the data gathering phase of this study. Officials in MSHT indicated that there have been no significant changes in recent years.

**Table 4: Technology of Public Milling Companies for 82% Flour, 1997 & 2001**

(tons per day)

Region	1997						2001					
	Cylinder		Stone		Total		Cylinder		Stone		Total	
	Capacity	No.	Capacity	No.	Capacity	No.	Capacity	No.	Capacity	No.	Capacity	No.
North Cairo	2625	8	825	5	3450	13	1710	6	670	5	2380	11
South Cairo	1517	9	750	10	2267	19	3041	7	890	8	3931	15
Alexandria	1408	7	725	7	2133	14	1525	11	70	1	1595	12
East Delta	2090	12	755	5	2845	17	2505	15	190	1	2695	16
Mid. & West Delta	2065	10	1655	8	3720	18	2528	10	1505	8	4033	18
Upper Egypt	1570	11	2096	13	3666	24	1132	10	1967	14	3099	24
Middle Egypt	1300	7	1770	14	3070	21	855	5	1947	9	2802	14
<b>Total</b>	<b>12575</b>	<b>64</b>	<b>8576</b>	<b>62</b>	<b>21151</b>	<b>126</b>	<b>13296</b>	<b>64</b>	<b>7239</b>	<b>46</b>	<b>20535</b>	<b>110</b>

Source: MSHT.

**Table 5: Milling Companies Producing Maize Flour Status in April 2002**

<b>Companies</b>	<b>Individual Mill</b>	<b>Production of Maize Flour (tons/day)</b>	<b>Technology Used</b>	<b>Mixing Inside Mill</b>	<b>Compound where Maize Flour Produced</b>
<b>Public</b>					
Alexandria	El-keik	40	Stone	No	
	Awad Mohamed	50	Stone	No	
	Sharaf	70	Stone	No	
<b>Total</b>		<b>160</b>			
Mid and West Delta	Benha	90	New Disk Mill	Yes	Wheat 350+Maize 90
	Tawfik Hegazy	120	Stone		
	Khalid Ibn Walid	120	Stone		
	El Salaam	60	Stone		
	El Fath	120	Stone		
<b>Total</b>		<b>510</b>			
East Delta	Orabi	80	New Cylinder	Yes	Wheat 320+Maize 80
	El Taweel	60	Old Cylinder		
	El Kady	80	Stone		
	Ismailia	60	Stone		
	El Zahed	40	Stone		
<b>Total</b>		<b>320</b>			
North Cairo Mills	Kandeel	75	Stone		
	Amer	75	Stone		
	Saleh Brothers	75	Stone		
	Al Ahram	75	Stone		

<b>Companies</b>	<b>Individual Mill</b>	<b>Production of Maize Flour (tons/day)</b>	<b>Technology Used</b>	<b>Mixing Inside Mill</b>	<b>Compound where Maize Flour Produced</b>
<b>Total</b>		<b>300</b>			
South Cairo & Giza Bakeries & Mills	Al Swehy	80	Stone		
	Oseem	40	Stone		
	Bahbah	35	Stone		
	Abdel Halim	35	Stone		
	Handok	50	Stone		
	Tebeen	80	Old Cylinder		
	Bortos	40	Stone		
<b>Total</b>		<b>360</b>			
Middle Egypt Mills	Ykmofeskola	60	Stone		
	Beba	60	Stone		
	Malawy	100	Stone		
	El Hamra	100	Stone		
<b>Total</b>		<b>320</b>			
<b>Upper Egypt Mills</b>	Naser-Naga Hamady	70	Old Cylinder		
	El Mahlag	180	Stone		
	Ahmos	100	Old Cylinder		
	Citi - Sohag	100	Old Cylinder		
	Naser-Kom Ombo	70	Old Cylinder		
<b>Total</b>		<b>520</b>			
<b>Total Public Enterprise</b>		<b>2490</b>			
<i>Private</i>					

<b>Companies</b>	<b>Individual Mill</b>	<b>Production of Maize Flour (tons/day)</b>	<b>Technology Used</b>	<b>Mixing Inside Mill</b>	<b>Compound where Maize Flour Produced</b>
Alexandria	Abees	30	Modern Cylinder	Yes	Wheat 120+Maize 30
Menoufia	Sadat	12	Modern Cylinder	Yes	Wheat 48+Maize 12
Kaluobia	Horeya Nabil Edris	30	Developed Cylinder	Yes	Wheat 120+Maize 30
Giza	Mazghouna	26	Stone	Yes	Wheat 104+Maize 26
Hurghada	Ahmed Abdel Hamid	24	Modern Cylinder	Yes	Wheat 96+Maize 24
Beni Swef	Makary	18	Modern Cylinder	Yes	Wheat 72+Maize 18
<b>Total Private</b>		<b>140</b>			
<b>Grand Total</b>		<b>2630</b>			

Source: METTCO Holdings.

**Table 6: Public Milling Companies, Capacities for 72% Flour**

(tons per day)

<b>Milling Company</b>	<b>Coverage</b>	<b>1997</b>	<b>2001</b>	<b>Change</b>
North Cairo	Greater Cairo	1650	1350	-300
South Cairo	Cairo, Giza	750	700	-50
Alexandria	Alexandria	750	700	-50
East Delta	Sharkia, Dakahlia, Damietta, Port Said, Ismailia, Suez, North and South Sinai	500	800	300
Mid & West Delta	Gharbia, Monufia, Qalubia, Behira, Kafr El Sheikh	1200	1280	80
Mid Egypt	Menya, Fayoum, Beni Suef, Assuit, El Wadi El Gedid	600	800	200
Upper Egypt		600	700	100
<b>Total</b>	<b>All Governorates</b>	<b>6050</b>	<b>6330</b>	<b>280</b>

Source: 1998 data, Abdel-Latif, A. The Egyptian Flour Milling Sector: Structure, Policy Environment and Present Challenge IFPRI-Project paper Series; 1999. 2001 data, Chamber of Cereals and its Products.

**Table 7: Distribution of Subsidized Flour by Governorate and Region**

(thousand tons)

Governorate/Region	1997			2000		
	Bakeries	Warehouses	Total	Bakeries	Warehouses	Total
<u>Metropolitan</u>						
Cairo	819	0	819	720	33	753
Alexandria	298	13	311	315	24	339
Port Said	39	1	40	33	3	36
Suez	34	2	36	33	2	35
Sub-total	1190	16	1206	1101	62	1163
<u>Middle and West Delta</u>						
Gharbia	143	46	189	169	13	182
Menoufia	125	90	215	131	16	147
Qalubia	227	10	237	233	5	238
Beheira	124	71	195	131	25	156
Kafr El Sheikh	40	43	83	69	21	90
Subtotal	659	260	919	733	80	813
<u>East Delta</u>						
Sharkia	181	0	181	199	1	200
Dakahlia	146	9	155	151	4	155
Damietta	62	44	106	66	4	70
Ismailia	54	13	67	61	10	71
Sub-total	443	66	509	477	19	496
<u>Middle Egypt</u>						
Giza	356	85	441	327	61	388
Beni Suef	93	15	108	103	4	107
Fayoum	79	92	171	87	81	168
Menia	202	1	203	222	1	223
Assiut	120	114	234	174	31	205
Sub-total	850	307	1157	913	178	1091
<u>Upper Egypt</u>						
Sohag	94	222	316	115	170	285
Qena	70	227	297	69	115	184
Aswan/Luxor	62	127	189	73	58	131
Sub-total	226	576	802	257	343	600
Frontier	56	32	88	35	32	67
<b>Total</b>	<b>3424</b>	<b>1257</b>	<b>4681</b>	<b>3516</b>	<b>714</b>	<b>4230</b>

Source: MSHT, unpublished data.

**Table 8: Private Milling Companies, Daily Capacities for 72% Wheat Flour, 1997-2001**

(tons/day)

Milling Company	Location	When first established	2001	Change
<b>Group (1): Operational in 1997</b>				
Wadi El Nil	Borg El Arab	500	500	0
Egyptian Millers	Six October	500	500	0
Six October for Milling and Development	Six October	150	150	0
Dahab	Six October	250	500	250
Makhabez El Delta	10th of Ramadan	500	500	0
Al-Aseel	Gharbia	160	160	0
Al Horeya	Qalubia	250	150	-100
Al-Ethad	Sharkia	150	150	0
<b>Sub-total</b>		<b>2460</b>	<b>2610</b>	<b>150</b>
<b>Group (2): Operational in 1998</b>				
Flour Land	Six of October	250	550	300
Five Stars Mill	Suex	450	900	450
El Safa	Badr City	500	500	0
Six October for Milling and Marketing	Six of October	500	700	200
Aziz Mill	Gharbia	60	150	90
Al Wehda Mill (Friends)	Assuit	90	210	120
Nile Company Mill (Sanabel)	El-Sadat City	120	120	0
<b>Sub-total</b>		<b>1970</b>	<b>3130</b>	<b>1160</b>
<b>Group (3): Operational in 1999/00</b>				
Al Sherouk Mill	Assuit	120	120	0
National Co. for Milling	Six of October	100	100	0
Middle East Co.	Sharkia	120	120	0
Arab International Co.	El Tebbin	150	150	0
El-Safady	Ismailia	350	350	0
El-Sadat	El Sadat City	500	500	0
Misr Italy	Damietta	150	150	0
El-Heini (El Yasmin)	Menya	120	120	0
United Co. for Mills (Faraana)*	Borg El Arab	500	500	0
El Hamd Co. for Mills	Borg El Arab	150	150	0
<b>Sub-total</b>		<b>2260</b>	<b>2260</b>	<b>0</b>
<b>Group (4): Operational in 2001</b>				
El Massreya	Borg El Arab	600	600	0
El Rehab	Damietta	500	500	0
Wady El Melouk*	Six of October	500	500	0
Ismailia	Ismailia	240	240	0
Aly Sharaf	Menufia	150	150	0
<b>Sub-total</b>		<b>1990</b>	<b>1990</b>	<b>0</b>
<b>Grand Total</b>		<b>8680</b>	<b>9990</b>	<b>1310</b>

Source: Chamber of Grains and its products, The Egyptian Federation of Industries.

\* These two private milling companies are owned by HCFI. They will be referred to in the text as public/private milling companies.

**Table 9: Wheat Production and Deliveries to GASC**

(000 tons)

Governorate	1997		2001	
	Production	Deliveries	Production	Deliveries
<b>Lower Egypt</b>				
Alexandria/Matroh	6.3	18.7	119.5	28.9
Suez	3.4	0.0	4.2	0.6
Qaluibia	110.8	2.1	118.8	25.8
Kafr El Sheikh	446.0	65.2	436.0	172.3
Gharbia	331.6	101.7	320.0	48.9
Menoufia	219.3	41.7	248.3	125.4
Beheira	580.5	166.9	605.3	205.4
Damietta	44.2	8.6	44.3	15.4
Dakahlia	515.4	67.4	609.9	145.1
Sharkia	597.4	14.5	715.6	255.6
Ismailia/Port Said	58.2	5.5	90.5	13.7
Sub-total	2913.1	492.3	3312.4	1037.1
<b>Middle Egypt</b>				
Giza	89.8	10.2	89.5	31.3
Fayoum	360.1	117.8	384.1	119.9
Beni Suef	286.8	97.3	323.0	116.2
Menia	518.5	202.1	566.7	300
Sub-total	1255.2	427.4	1363.3	567.4
<b>Upper Egypt</b>				
Assiut	351.1	37.9	384.0	55.7
Sohag	406.0	12.6	441.5	15.6
Qena	211.6	4.1	192.1	2
Aswan/Luxor	61.8	5.7	79.7	1.5
Subtotal	1030.5	60.3	1097.3	74.8
Frontier/New Lands	649.6	0.0	481.4	23.1
Cooperatives				310.6
<b>Total</b>	<b>5848.4</b>	<b>980.0</b>	<b>6254.4</b>	<b>2013.0</b>

Sources: MSHT unpublished data and MALR Annual Production Reports.