Pakistan Wheat Subsector and Afghan Food Security

A special report by the Famine Early Warning Systems Network (FEWS NET)

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TABLE OF CONTENTS

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FEWS NET extends its thanks to the participants of the one-day workshop in Kabul (February 27, 2007) who gave valuable recommendations, which are being made part of this report.

The report was prepared under the overall supervision of Dr. Patricia Bonnard, FEWS NET Senior Markets and Trade Advisor/Washington, DC; Mr. Fazal Karim Najimi, FEWS NET National Representative/Kabul; and Dr. Kenneth E. Neils, Markets Advisor.

"The pathways from economic and social policies to improved food security and nutrition for the poor often are understood the mechanism of food aid. But the thrust of the food security problem lies that how households increase their incomes, acquire food, improve health, or cope with insecurity are important concerns that need to be examined in order to devise policies to help eradicate poverty."

FEWS NET

ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AJK	Azad Jammu Kashmir
APCOM	Agriculture Price Commission
ATTA	Afghan Trade and Transit Agreement
CIDA	Canadian International Development Agency
CIMMYT	International Center for Research on Maize and Wheat
FAO	Food and Agricultural Organization
FATA	Federally Administered Tribal Areas
FCA	Federal Committee on Agriculture
FEWS NET	Famine Early Warning Systems Network
FFGI	Food and Feed Grains Institute
FSCD	Federal Seed Certification Department
FSM	Food Security Management Project
GIAI	Grain Industry Alliance International
GMC	Grain Management Cell
GOP	Government of Pakistan
ICARDA	International Center for Agricultural Research in Dry Area
IFDC	International Fertilizer Development Center
KSU	Kansas State University
MAAH	Ministry of Agriculture and Animal Husbandry
MAIL	Ministry of Agriculture, Irrigation, and Livestock
MI	Micronutrient Imitative
MINFAL	Ministry of Food Agriculture and Livestock
MIS	Market Information Systems
MoA	Ministry of Agriculture
MoC	Ministry of Commerce
MRRD	Ministry of Rural Rehabilitation and Development
MT	Metric Ton
NDVI	Normalized Difference Vegetation Index
NGO	Non-governmental Organization
NRI	Natural Resources Institute
NRVA	National Rural Vulnerability Assessment
NWFP	North West Frontier Province
PARC	Pakistan Agricultural Research Council
PASSCO	Pakistan Agricultural Storage and Services Corporation
PFD	Provincial Food Departments
PFMA	Pakistan Feed Manufacturers Association
PFMA	Pakistan Flour Mills Association
PMD	Pakistan Metrological Department
PRC	Provincial Reserve Center
RAMP	Rebuilding Agricultural Markets Program
SOW	Scope of Work
STDT	Storage Technology Development and Transfer Project
SUPARCO	Pakistan Space and Upper Atmosphere Research Commission
USAID	United States Agency for International Development
WFP	World Food Program

Map 1: Pakistan and Central Asian Neighbors

Map 2: Survey Locations

EXECUTIVE SUMMARY

The Famine Early Warning Systems Network (FEWS NET) designed the Regional Wheat Markets and Afghan Food Security Initiative in an effort to enhance the knowledge of regional wheat markets, Afghan wheat supplies and Afghan food security, and thereby enhance FEWS NET's ability to provide useful food security and early warning analysis and reporting. The initiative is comprised of a set of separate but complementary market and trade assessment activities and surveys, implemented in a staged approach.

The "Pakistan Wheat Subsector and Afghan Food Security" study is one component of this initiative. The objective of the study was to review the existing knowledge on Pakistan's wheat subsector and gain a clear understanding of how Pakistan wheat policy and markets affect wheat markets and food security in Afghanistan. The results of the study are expected to help improve food security analysis, early warning and the estimation of food needs in Afghanistan.

The study used a rapid informal survey approach to collect information from a pre-selected cross-section of stakeholders (including officials from government departments, private sector organizations, wheat traders, and flour millers) in major wheat markets and cities in Pakistan. The first task was to review existing literature on Pakistan's wheat subsector (Annex 3). The next task was to identify a cross-section of public and private stakeholders[1] to be interviewed from three major provinces in Pakistan's Punjab, NWFP and Balochistan provinces (Annex 2). The data were collected using a detailed checklist containing questions that could be used to generate knowledge about the structure, conduct and the performance of the wheat subsector and its potential impact on Afghanistan wheat supply and food security (Annex 4). In addition, secondary data were collected from government organizations, NGOs, research organizations and private sector institutions in Punjab, NWFP, and Balochistan provinces.

The consultant, in collaboration with FEWS NET/Afghanistan, organized a one-day workshop in Kabul on February 27, 2007 where results of the study were presented and discussed. Comments and recommendations from the participants have been incorporated into the report.

Wheat is Pakistan's most important agricultural commodity and represents 13.7 percent of the total value added of the agricultural sector and three percent of the gross domestic product (GDP). Since the start of the 'Green Revolution'[2] in Pakistan and the government's push for self-sufficiency, wheat production has steadily risen, and with continued support through the government's "grow more wheat" campaign, production is expected to increase from the present production level of 22 million tons to 30 million tons by 2015.

The Government of Pakistan (GOP) exerts significant direct influence over the wheat subsector and is indirectly involved in the production, marketing, storing, processing and distribution of wheat, largely through various tax mechanisms and subsidy schemes at different levels of the wheat subsector. In recent years, the GOP has been encouraging expansion of private sector wheat markets, and one of the ways has been to provide credit from government bank facilities for wheat procurement, handling, and storage to private seed companies and flour mills. In addition, the Asian Development Bank's (ADB's) Agribusiness Project in Pakistan is providing assistance to the government to deregulate wheat markets and restructure the operations of Provincial Food Departments[3] (PFDs)

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[1]Interviews were conducted in Lahore, Sahiwal, Khanewal, Chichawatni, Multan, Bahawalpur, and Rahim Yar Khan districts of Punjab Province; Islamabad, Peshawar, Haripur, and Swabi districts of Northwest Frontier Province; and Quetta of Balochistan Province.

[2] The Green Revolution can be divided into several periods: 1) the early 1960s to about 1972 when there was a dramatic growth in productivity, 2) 1973 into the 1980s when there was less dramatic growth, and 3) declines in productivity staring in the 1980s and extending into the 1990s.

[3] Provincial Food Departments have been operating since the independence. They are responsible for the regulation of procurement, storage, and distribution of wheat to the flour mills and deficit locations.

There has been rapid growth of private, modern flour mills in Pakistan, especially along the Pakistan-Afghanistan border. Currently, there are 600 registered flour mills in Punjab, 275 in NWFP, 325 in Sindh and 65 in Balochistan Province. However, less than half of these flour mills are operational while the rest are completely shut down. Flour mills in central and south Punjab and in Islamabad are fully operational because surplus wheat is readily available and the mills are able to operate at profitable levels.

The Pakistani flour-milling industry represents stiff competition for the Afghan flour-milling industry. The flour milling capacity in Afghanistan is very limited. There are about nine or ten medium-sized (industrial-scale) commercial mills in the entire country (Kunduz 1, Hirat 1, Kabul 3, and Mazar-i-Sharif 3) with a milling capacity ranging from about 80-500 MT/day. In Hirat and Kunduz, commercial mills have had some difficulties getting the quality and quantity of wheat that is needed. Nonetheless, these mills are operating profitably supplying regional markets while not competing very well in markets closer to Pakistan. In addition to the industrial-scale mills, there are approximately 300-400.*Asiabs*,[4] (water driven or diesel-powered small mills) which operate in each Afghan province with a milling capacity of one to three metric tons per day and an extraction rate of about 100 percent.

The private millers and traders of Pakistan work closely with Afghan traders in supplying Afghanistan with about 80 percent of its flour imports. Afghan traders are actively involved in the importation of Pakistani wheat because:

- Pakistan and Afghanistan share a 1,600 kilometer-long border, have relatively efficient trade routes connecting the two countries and have had a long history (since 1960) of trading flour and other food items from Pakistan.
- There are significant supplies of wheat flour regularly available from Pakistan.
- Credit is available for Afghan traders buying flour from the Pakistani mills.
- Afghan consumers like Pakistani wheat flour for making Afghan *naan* and other baked products.
- Pakistan has been accommodating over three million Afghan refugees for the past two decades and the refugees' food (flour) needs are being met by Pakistan through international humanitarian programs.
- Pakistan has a whole series of wheat policies and programs that have a range of significant implications on trade with and Afghan food security (see section 9 and the extensive list presented in table 8).

Pakistan wheat policies would have less impact on Afghan food security if post-harvest grain losses in Afghanistan are minimized by adopting effective post-harvest management techniques. According to Afghan government sources, post harvest cereal losses (mostly wheat) in the post harvest operations i.e. threshing, handling, transportation, storage and in the milling processes is high and accumulatively 15 percent.[5] About an additional 75,000-100,000 tons of cereals would be available for human consumption if the post harvest losses were reduced by three percentage points. There has been no formal study to date in Afghanistan to determine the actual percentage of grain losses, but it is clear that post-harvest losses need to be reduced with improved post-harvest handling and storage methods.

The following are observations and recommendations identified by the Pakistan wheat survey and/or based on one-day workshop in Kabul

- Food security (at the national level) does not necessarily require national self-sufficiency in wheat or other food staples as long as the country has access to international markets.

- Diversification into production of high valued crops may be the most effective means of increasing food security, by generating foreign exchange and raising the incomes and purchasing power of the rural poor.

[4] *Asiabs* is the word used for water mills in the local language (Dari), but now it is commonly used to refer to all kinds of small mills driven by water, diesel or electricity.

[5] Ministry of Agriculture Afghanistan Master Plan page 182, under section 2.1.2, post-harvest losses

- The Government of Afghanistan may recognize the need for developing and implementing policies towards maintaining operational food security schemes that include an efficient marketing, storage, and distribution system and monitoring the demand and supply situation in the country.

- The capability of the private sector to respond to food insecurity and help stabilize prices during the periods of scarcity depends significantly on their ability to compete and perform efficiently in international (regional) markets. Therefore, the Afghan government must improve market infrastructure and lower import taxes and other duties.

- More than 80 percent of all wheat flour in Afghanistan is imported from Pakistan. Therefore, Pakistan wheat policies have a significant affect on the fulfillment of Afghan food requirements and need to be monitored by the Afghan government with FEWS NET assistance in establishing affective linkages with various organizations in Pakistan.

- FEWS NET could include a regular section in its monthly food security update on Pakistan wheat markets relevant to Afghan food security, wheat trade, and prices.

- Given that Pakistan and Afghanistan share a 1,600-kilometer border, it is important that both countries effectively implement the Afghan Transit Trader Agreement (ATTA) to boost official trade.

- Given estimated post-harvest grain losses above 15 percent as reported by the Ministry of Agriculture's Master Plan (Page 182 under section 2.1.2), which seem unrealistically high, there is a need to carry out an independent study to more precisely determine the extent of losses and suggest preventive measures.

- Pakistan wheat policies have implications on both national and household food security in Afghanistan. Consistent and abundant supply of wheat and wheat flour from Pakistan keeps the prices stabilized and at affordable level in Afghanistan markets.

- Pakistan has started a national program of flour fortification. The export of fortified flour to Afghanistan would serve to improve the micronutrient content of diets for those Afghans who would have access to fortified flour.

- The establishment of Village-Based Seed Enterprises (VBSE)[6] is a good initiative created by RAMP and FAO that is continuing. Such enterprises will help increase agricultural productivity.

- Afghanistan should accelerate its privatization of the public sector silo program (started in collaboration with Emerging Markets Group) to encourage private investments in grain handling, storage, and processing.

- There is a growing need to establish and effectively implement practical grain quality standards that are shared by the two countries. The existing Fair Average Quality standards do not help the sellers and buyers because standards are based on arbitrary, subjective tests.

- An information network on food security and early warning working in collaboration with neighboring countries can bridge information gaps and can support the objective reporting of information on agricultural statistics for the purpose of facilitating decision making by policy makers.

[6] Village Based Seed Enterprises were developed by the Rebuilding Afghan Markets Program (RAMP) (Chemonics/USAID) in Afghanistan (2003-2006) in collaboration with International Center for Research in the Dry Areas (ICARDA), which proved to be very useful for the farmers through the improvement in production of quality seed.

- Given the significance of Pakistan wheat flour in Afghanistan, and the implications on Pakistan wheat markets (table 9), it is suggested to have a FEWS NET agro-informatics resource in Pakistan for data collection, analysis, and reporting purposes.

- Pakistan's wheat policies have numerous negative impacts on Afghan food security: a summary of significant impacts are listed in table 9.

- Information on Pakistan's wheat subsector should be collected, analyzed, interpreted, and disseminated according to a suggested format (see section 11.3), and forwarded to FEWS NET Afghanistan to be incorporated into the regular FEWS NET bulletins in an effort to make the information more accessible to Afghan policy makers and others involved in the national food security management, programming, and early warning.

1. INTRODUCTION

Wheat is the major food grain for both Afghanistan and Pakistan. Annual per capita wheat consumption is about 160 kg and 120 kg in Afghanistan and Pakistan, respectively. In both countries, most wheat is consumed in the form of bread. But where the two countries are similar in terms of consumption preferences, they are very different in terms of wheat production and marketing systems.

Since the Green Revolution, Pakistan has achieved remarkable progress in the wheat subsector. Through the efforts of the Pakistan Agricultural Research Council (PARC), and with assistance from the International Center for Research on Maize and Wheat, Pakistan became the first developing country in Asia to achieve self-sufficiency in wheat production.

The agriculture and natural resources sectors in Afghanistan were severely damaged as a consequence of twenty-three years of war and conflict, and four years of severe drought (1998-2002). According to UN estimates, agricultural production was reduced to less than 50 percent of pre-conflict levels; livestock was reduced by over 40 percent for settled populations, and it is estimated that the nomads (*Kuchis*) lost 60-70 percent of their animals. Thousands of tons of wheat have been imported to meet the food needs of the country's increasing population. In recent years, the quantity of wheat imports is reported to have reached crisis levels from the perception of those attempting to rebuild the Afghan wheat subsector. Wheat imports amounted to 1.12 million tons in 1998, 2.2 million tons in 2001, and 2.3 million tons in 2002. In addition, a large number of people throughout the country depend on emergency food aid from external sources, and the return of a large number of refugees and IDPs has exacerbated the situation.

The Afghanistan food security situation has always been seen in the context of the wheat situation in Pakistan. Although wheat flows into Afghanistan from the north and east through Kazakhstan and Iran, Pakistan is clearly a major supplier of wheat to Afghanistan. Pakistan has been providing wheat to Afghanistan since 1960. The movement of wheat has continued over the years as formal and informal trade between the two countries. Trade continues in one way or another despite provincial and inter-district bans imposed by the Government of Pakistan (GOP). However, more recently and at the time of the survey, traders reported that unofficial trade has drastically decreased due to better surveillance of the border by Pakistani and Afghan authorities.

Food security in Afghanistan is dependent on the availability of wheat from own production and to a significant extent from regional trade with neighboring countries. Although domestic production makes an important contribution, it is increasingly recognized that the wheat supply in Afghanistan is determined to a great extent on wheat production and trade within the broader Central Asia region, especially on production from Pakistan and Kazakhstan, and to a lesser extent on Iran.[7] However, limited information on regional wheat markets and trade flows constrains the depth of market and food security analysis. There is a need for critical market information to support the design of appropriate policy and program responses in Afghanistan.

OBJECTIVE OF THE STUDY

FEWS NET recently began a Regional Wheat Markets and Afghan Food Security Initiative in an effort to reduce the existing information gaps and strengthen the understanding of regional wheat markets and food security in Afghanistan, and thereby enhance FEWS NET's ability to provide useful food security and early warning analysis. The initiative is comprised of a set of separate but complementary market and trade assessment activities, implemented in a staged approach.

Afghanistan is reliant on wheat flour imports from Pakistan, which makes up a significant portion of the supply in Afghanistan, especially in certain parts of the country. Because of this, it was felt that study that could provide greater knowledge of the wheat subsector in Pakistan and its relation to Afghanistan's wheat supply would make a critical contribution to understanding Afghan food security. The results of the study are

[7] See FEWS NET "The Contribution of Regional Markets to Afghan Wheat Supplies."

expected to improve food security analysis, early warning and the estimation of food needs in Afghanistan. The scope of work for this study is provided in Annex 1.

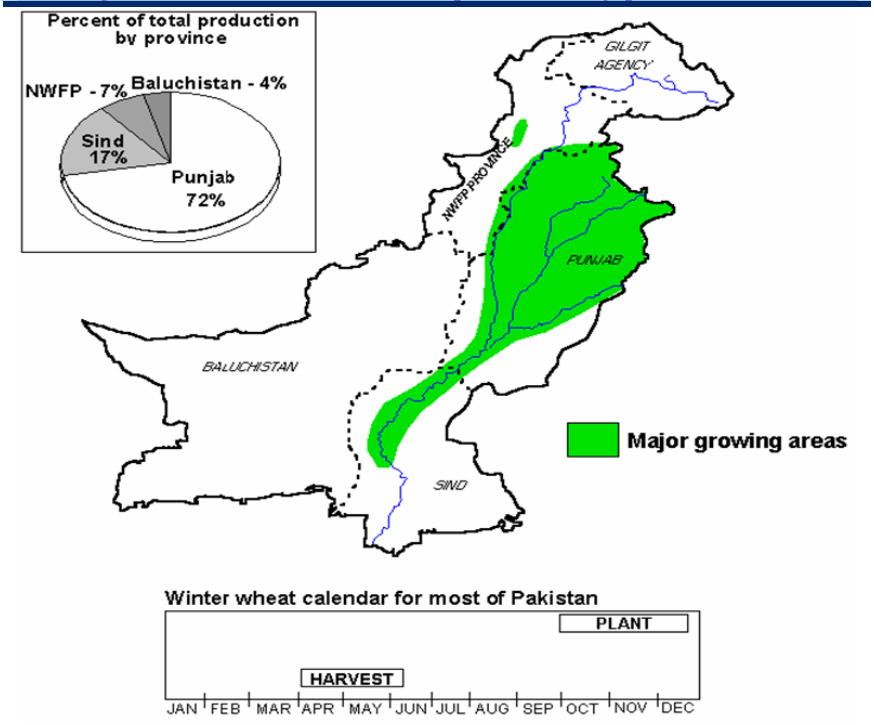
2. WHEAT PRODUCTION

2.1 PAKISTAN WHEAT PRODUCTION

Wheat is Pakistan's most important agricultural commodity and represents 13.7 percent of the total value added of the agricultural sector and three percent to the gross domestic product (GDP). Its share of total crop area is 37 percent.

Pakistan has a total cropped area under wheat of 8.45 million hectares that is divided among four provinces; Punjab's 6.48 million hectares; Sindh's 0.93 million hectares; NWFP's 0.72 million hectares, and Balochistan's 0.31 million hectares. Out of the total annual wheat production of around 22 million MT, Punjab has the biggest share with 18 million MT followed by Sindh with 2.5 million MT, NWFP with 1.1 million MT, and Balochistan with 637,000 MT. Punjab is the breadbasket of the country, and has a 100-year old canal network system for its agriculture. Figure 1 illustrates how total wheat production is distributed across the major wheat producing areas: with 72 percent of the total, Punjab is clearly the primary producer.

Figure 1: Pakistan winter wheat production by province, 2007



Source: National Pak-Agro-informatics website Pakistan

Wheat production increased by 528 percent from1948 to 2000, while the increase in area planted was 114 percent. Significant improvements are attributed to the Green Revolution Era and the government's push for self-sufficiency in production. Wheat production remained steady over the last 3-4 years. Pakistan wheat production (over 21 million tons) has been fairly stable over the last three years, primarily due to the Government of Pakistan's (GOP) campaign to 'grow more wheat.' Pakistan intends to raise its wheat output to 30 million tons by 2015.

In addition, Pakistan wheat markets are heavily influenced by GOP interventions. The government procures around 70 percent of the marketable surplus through federal storage organizations and provincial food departments. The GOP maintains a strategic wheat reserve and supplies wheat to deficit provinces. The Agricultural Prices Commission (APCOM) announces minimum support prices for farmers every year before the harvest. The respective Provincial Food Departments in consultation with flour mills announce consumer prices for wheat flour.

There are three key elements of Pakistan's wheat development strategy:

1. expansion of cultivated and irrigated area;
2. introduction of high-yielding varieties; and
3. intensification of agricultural input use, especially chemical fertilizers and irrigation water.

The GOP's involvement in wheat production and distribution is, to a large part, inherited from its colonial past. Wheat market policies are guided by GOP objectives to support production and consumption policy

targets. Procurement policies focus on ensuring a support price to farmers and a targeted quantity of wheat to be procured by the government. The main objective of the wheat distribution policy is to provide low priced wheat and flour to the general population.

The GOP's laws, regulations, or trade policies related to wheat markets have aimed to achieve the following:

- regularly procure about 60 percent of the total marketable surplus at support prices;
- provide farmers with subsidized agricultural inputs;
- provide consumers with subsidized flour through a variety of schemes;
- achieve procurement targets for the purpose of maintaining "strategic reserves" through imposition of restrictions on commercial marketing;
- impose tariff barriers for the purpose of revenue generation;
- impose the non-tariff barriers for the purpose of ensuring quality control on imports;
- enforce Afghan Transit Trade Agreement (ATTA),[8] although not yet fully enforced;
- encourage investments in new flour mills through a wheat quota incentive system;
- enforce Fair Average Quality (FAQ)[9] wheat buying and selling standards using grain testing labs and equipment;
- maintain a no loss policy for grain storage;
- gradually liberalize the Pakistan wheat marketing system;
- encourage the expansion of wheat production to 30 million MT by 2015;
- launch a national program on flour fortification; and
- work in collaboration with South Asian Association for Regional Cooperation (SAARC) to establish a food bank for member countries.

This series of policies creates an environment characterized by many distortions that translate into significant incentives for intensive and extensive wheat production, marketing, and trade. Pakistan wheat policies are guided by an objective of maintaining national food security and providing farmers a minimum guaranteed support price at each harvest. The GOP implements its wheat marketing and distribution systems through Federal and Provincial Food Departments. The government's strategy regarding maintaining food reserves mainly depends on the following three measures:

- reduce the uncertainty and price risk in wheat farming and maintain food security in the country: the government announces its support price policy every year well before the wheat sowing period enabling the growers to produce more buffer stocks for reserves;
- ensure timely provision of improved and high yielding seeds and other agriculture inputs to sustain the upward trend and self sufficiency in wheat production; and
- persuade growers to adopt modern practices for cultivation of crops by extending appropriate facilities to the growers and making significant policy changes to facilitate private sector wheat operations.

As a consequence of this policy agenda, wheat flour exports to Afghanistan are expected to increase in 2007 because the private sector has procured wheat aggressively this harvest season and government departments are worried about meeting their wheat procurement targets. A more complete list of policies and impacts on Afghan food security are contained on table 9.

According to estimates, Pakistan will reap a record wheat crop in 2007. Government sources firmly believe that wheat output will exceed the official 2007 target of 22.5 million tons. The estimated yield is high as a result of favorable weather conditions, increased use of fertilizer following a reduction in fertilizer prices, and

[8]In the 1960s, Pakistan and Afghanistan entered into an Afghan Transit Trade Agreement (ATTA) that allowed goods bound for landlocked Afghanistan to go through Pakistan free of duty.

[9] Fair Average Quality standards (FAQ) refers to buying and selling standards for wheat in Pakistan.

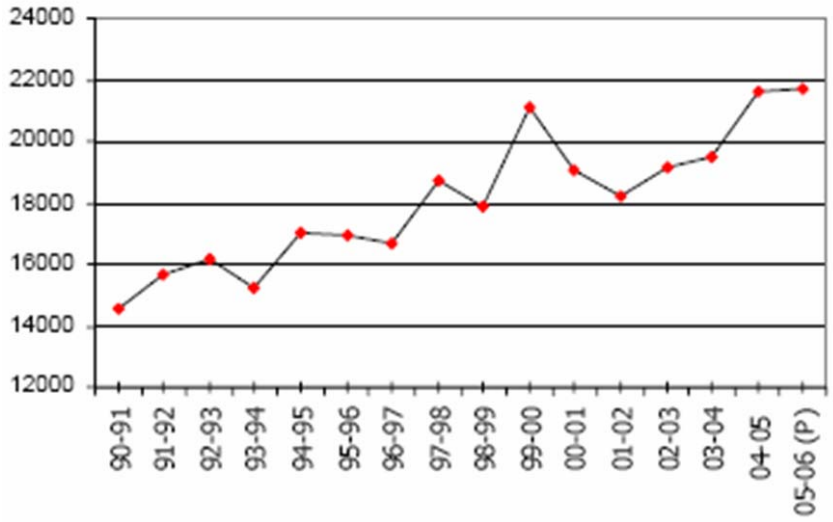
the government's decision to increase the wheat producer support price from Rps 10,370/ton (US$173/ton) to Rps 10,630/ton (US$177/ton). The GOP has offered these incentives to the farmers in order to:

- raise wheat output to 30 million tons by 2015;
- stimulate growth in agriculture to 4.5 percent in an effort to achieve this year's targeted GDP growth rate of seven percent; and
- maintain sufficient buffer stocks for achieving national food security.

Pakistan will begin the next wheat harvest (2007) with a carryover stock of over 1.5 million tons. These stocks will be exported to Afghanistan, Turkey, the Middle East, and other international destinations. Both carryover and buffer stocks are likely to incur post-harvest losses and may decline in quality due to prolonged storage, as observed at various storage locations in the country during the survey.

The Pakistan post-harvest wheat sector faces many challenges, including the need for grain grades and standards, grain quality testing laboratory facilities, mechanized storage and handling facilities, liberalized markets with no inter-provincial restrictions on the movement of wheat, and close coordination with the private sector on the import of wheat.

Figure 2: Pakistan wheat production



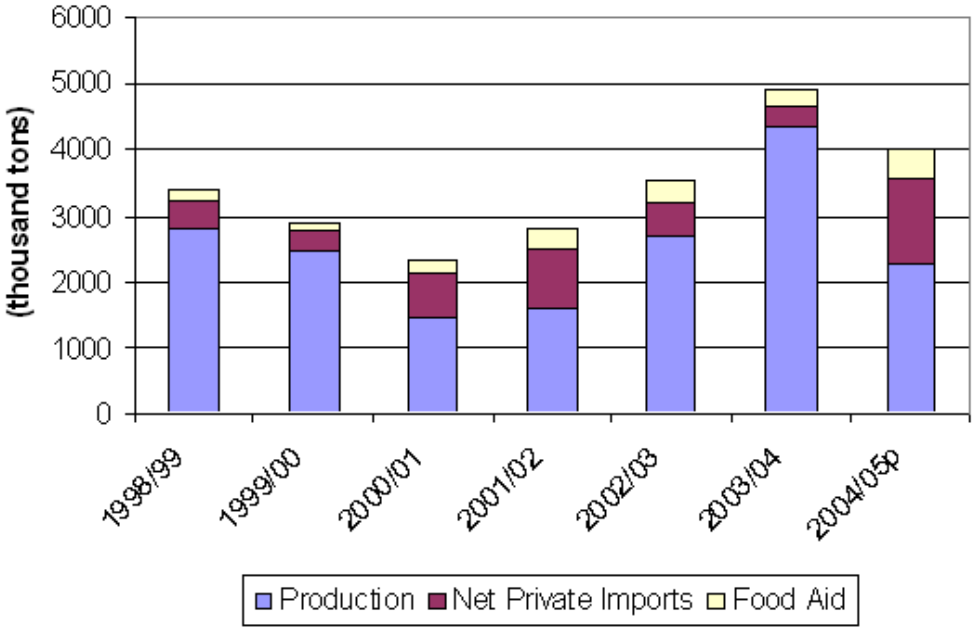
Source: Economic Survey of Pakistan MINFAL 2005-2006

Pakistan's agricultural sector suffered a severe setback during the 2000/01 season and wheat production dropped from 21 to 19 million MT due to an unprecedented drought and a resultant shortage of irrigation water. However, per the Economic Survey of Pakistan, total grain production has been relatively consistent at over 20 million metric tons during the last three years.

2.2 AFGHANISTAN WHEAT PRODUCTION

In 1978, Afghanistan was self sufficient in food, meeting the requirements of its population of 14 million people. But nearly two decades of civil unrest virtually destroyed the agricultural marketing and storage infrastructure. Nevertheless, after several consecutive years of drought, Afghanistan was able to register a substantial recovery for the 2003/04 season due to significant rainfall. Under average wheat growing conditions, irrigated wheat constitutes about 70 percent of total wheat production. The remainder is produced under rain-fed conditions. In the past eight years, overall wheat yields have ranged from 0.9 to 1.9 MT per hectare.

Figure 3: Afghanistan wheat production and imports, 1998/1999-2004/2005



Source: Wheat markets, food aid and food security in Afghanistan, Paul A. Dorosh/Philippe Chabot

Economic growth can be generated through boosting agriculture production and building food markets and storage infrastructure. Afghanistan is capable of rebuilding the country's shattered economy and achieving food self-sufficiency. However, it will require a collaborative effort on the part of Afghanistan and international donors like the UN and USAID. To date, their contributions have been significant.

As figure 3 illustrates, Afghanistan wheat production in 2000/01 was 1.47 million MT, which steadily grew to 4.4 million MT in 2003/04, a year with a particularly good harvest. Harvests in the succeeding years were not good due to severe drought conditions. However, 37 percent of the total availability was compensated for through food aid and commercial imports. Per capita cereal consumption is estimated at 160 kg per year.