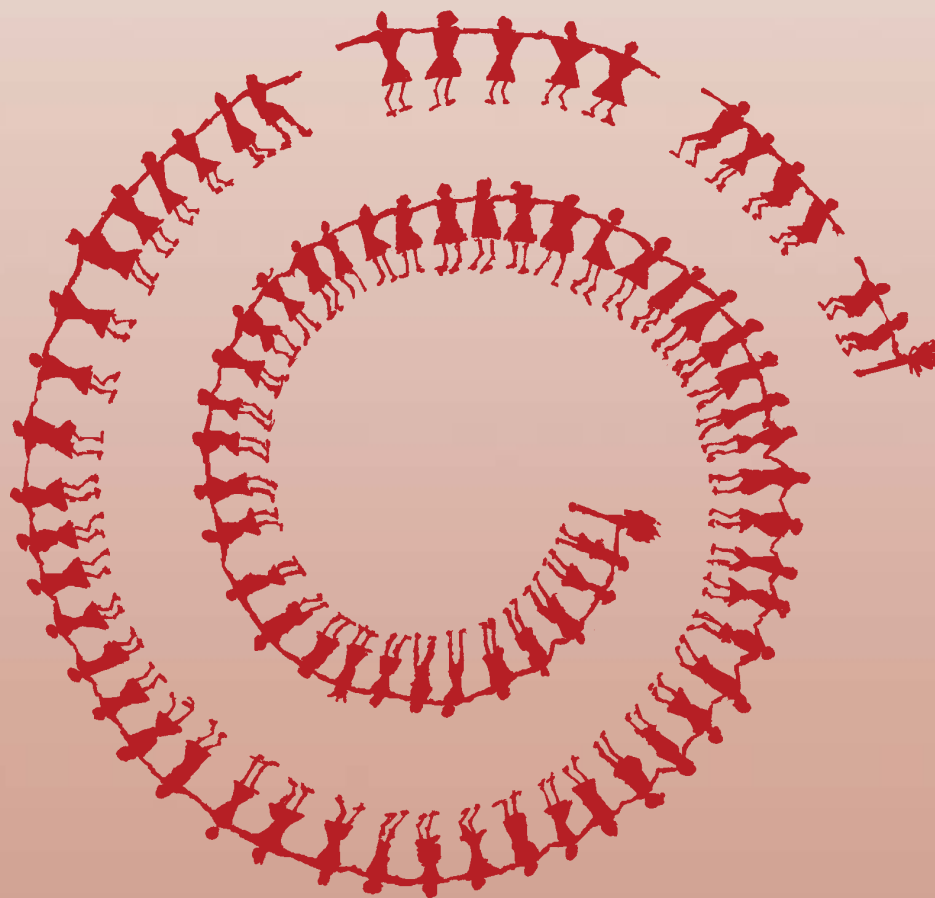


South Asia: Agriculture and Rural Development Sector
Human Development Sector

Enhancing Food Security in Afghanistan: Private Markets and Public Policy Options

August 2005



**ENHANCING FOOD SECURITY IN AFGHANISTAN:
PRIVATE MARKETS AND PUBLIC POLICY OPTIONS**

Agriculture and Rural Development Sector
and
Human Development Sector
South Asia Region
The World Bank

August 2005

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ABBREVIATIONS AND ACRONYMS

ACF	Accion Contra Faim
BCM	Billion Cubic Meters
CFW	Cash for Work
CSO	Central Statistics Office
FAO	Food and Agricultural Organization
FFE	Food for Education
FFT	Food for Training
FFW	Food for Work
IDP	Internally Displaced People
LSP PIP	Livelihoods and Social Protection Public Investment Program
MAAH	Ministry of Agriculture and Animal Husbandry
MDG	Millennium Development Goal
MISFA	Micro-Finance Support Facility of Afghanistan
MIWRE	Ministry of Irrigation, Water and Rural Electricity
MRRD	Ministry of Rehabilitation and Rural Development
NEEP	National Emergency Employment Program
NGO	Non-governmental Organization
NRVA	National Rural Vulnerability Assessment
NSP	National Solidarity Program
PRRO	Protracted Relief and Recovery Operation
SAF	Securing Afghanistan's Future
TISA	Transitional Islamic State of Afghanistan
UNICEF	United Nations Children Fund
UNODC	United Nations Office for Drug Control
WFP	World Food Programme

EXECUTIVE SUMMARY

In the last two decades, Afghanistan has endured protracted conflict, political upheaval, and natural calamities (including droughts) that have threatened the food security and indeed the very lives of much of the population. Poverty and vulnerability are widespread, both in rural and urban Afghanistan. The country experienced major disruptions to productive investment, markets, public institutions and household incomes. However, a combination of private international trade, migration, entrepreneurial activities and other household coping strategies (including sales and slaughter of livestock) together with the work of humanitarian agencies have all helped to mitigate the extent of human suffering and loss of lives. Now, with growing peace and prosperity in the country, and an elected government, the conditions to ensure greater food security for the people of Afghanistan are in place. Moving forward, coherent public policies and programs are required to increase the country's self-reliance, mitigate the risks of future shocks to households, and improve the nutritional status and overall human development of its population.

This report analyzes some key aspects of food security, namely production, trade, markets and food aid at the national level, and consumption at the household level. In doing so it aspires to make a contribution to the on-going work in Afghanistan regarding the attainment of the poverty and hunger Millennium Development Goal (MDG #1). The major findings of the report can be summarized as follows:

- **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. Rather, **diversification into legal high-value crops and livestock products** 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.
- In spite of very difficult conditions, wheat markets in Afghanistan have performed fairly well and private sector international trade has helped to stabilize supply and prices. Therefore, **further developing the infrastructure and institutions to support wheat markets and facilitating private sector trade is called for and will enhance food security.**
- At the household level, food insecurity in Afghanistan is largely caused by inadequate access to food resulting from low household incomes. For most of Afghanistan, where availability of food is not a constraint, **increasing cash incomes is the more efficient means of enhancing food security** of the poor.
- **Development of both private and public capacity** for data collection and analysis is a high priority for effective formulation, assessment and implementation of food policies.

Food Policy Objectives and Scope

The ultimate objective of food policy in Afghanistan is to ensure food security for all Afghans, where food security is defined as **access by all people at all times to the food needed for an active and healthy life** (1996 World Food Summit). This objective is echoed in the first MDG, which calls for the eradication of extreme poverty and hunger, with a significant reduction in the number of people suffering from hunger by 2015. Achieving a reduction in hunger and increased food security in turn requires that the three major components are met: **Availability** of food (domestic food production, commercial imports, food aid and security stocks); **Access** to food (the ability to produce or purchase food at the household level, as determined by income, other

resources, government transfer programs and market prices), and **Nutrition** (determined by actual food intake, health, sanitation and caring practices).

The food policy framework proposed in this report focuses on policies related directly to **food production, food markets, and consumption**, with special attention to wheat, the major food staple of Afghanistan. This report is not intended as a final or complete food policy framework for Afghanistan, even for the narrower definition of food security delineated above. Instead, this report is designed to support a process of dialogue and debate by the Afghan government and civil society leading to the formulation and implementation of a national food policy and improved food security outcomes for the people of Afghanistan.

Food Production

Food production systems vary greatly across Afghanistan, and are influenced by both agro-ecological factors (e.g., elevation, soil type, rainfall, and availability of irrigation) and socio-economic factors (e.g., market proximity and infrastructure – roads, electricity, communications etc., – security, level of incomes). Due to mountainous terrain in much of the country and an arid to semi-arid climate, only about 14 percent of total area is cultivated with crops. Of this agricultural land, about 40 percent is irrigated. Wheat dominates crop production in Afghanistan: about 70 percent of crop area cultivated is planted with wheat (of which about 70 percent is irrigated). Other cereals (rice, barley and maize – the latter two crops produced largely for animal feed) account for another 15 percent of area cultivated. Poppy, an extremely labor intensive crop grown illegally on about 2 percent of cultivated land, is a major source of income for opium producers and traders, and some, though not necessarily all, farmers cultivating the crop.

Availability of water is a limiting factor on agricultural production in most years, and wheat production has varied considerably in recent years because of both drought and deterioration in irrigation infrastructure. After severe droughts in 2000 and 2001, adequate rainfall and snow melt in late 2002 permitted a large expansion in area sown in November-December for the wheat crop harvested in April-May of 2003 and resulted in a record wheat harvest, estimated at 4.36 million tons.¹

Table 1: Afghanistan: Wheat Availability, 2001-04 (thousand tons)

	2000	2001	2002	2003	2004	Average (‘000 tons)	2002-04 (share)
Availability	2357	2817	3546	4912	4005	4154	100%
Production	1469	1597	2686	4362	2293	3114	75%
Imports	888	1220	860	550	1712	1041	25%
Commercial	650	908	500	300	1300	700	17%
Food Aid	238	312	360	250	412	341	8%

Note: Years indicate calendar year of main harvest (April - May). Data on imports and availability are for the following July/June fiscal year. For example, the figures for 2004 indicate production in April - May 2004 and availability for 2004/05. Data limitations mean that these estimates may carry significant margins of error. 2004 data are preliminary.

Source: FAO/WFP Kabul.

¹ Chapter 2 and Annex 1 discuss data limitations and alternate estimates of wheat production in Afghanistan.

Livestock (mainly sheep, goats, cattle and poultry) is also a major source of food and income for Afghan farmers, and is an integral part of most farming systems in the country. Range pasture land covers about 45 percent of total land area and has traditionally supported a large livestock population, with animals being the only source of income for some groups such as the Kuchi nomads. According to a 2003 census, the livestock population is about 34 million (including 12 million of poultry), about a two-thirds decline from pre-drought estimates (for 1995).

Achieving substantial increases in agricultural and livestock production will require a number of measures, viz.:

- **Investments in irrigation rehabilitation and irrigation management reforms** (establishment of a river basin approach and support for local management of water resources through water users associations).
- **Investments in agricultural research and extension**, including reforms in extension services to make them more responsive to farmers.
- **Maintaining adequate incentives for efficient domestic production** through policies and infrastructure investments that promote development of competitive agricultural markets and avoid price disincentive effects of subsidized imports (food aid or commercial sales).

The optimal agricultural policy for Afghanistan most likely rests with diversification (away from poppy) into legal high-value crops and livestock products, and this in turn will promote food security by generating employment and raising incomes of the rural poor. **Food security does not necessarily require national self-sufficiency** in wheat or other food staples. (Nonetheless, in years of good wheat harvests, Afghanistan may approach wheat self-sufficiency.) As long as the country has sufficient purchasing power to acquire wheat and other food on international markets, and market flows are not blocked, commercial trade can ensure adequate supply of food at the national level. Similarly, as long as household incomes are sufficient to purchase available food in local markets, these households need not be self-sufficient in food either.

Food Markets (International Trade and Domestic Markets)

Food markets play a crucial role in food security, linking domestic producers and international suppliers to consumers, including urban, rural non-farm and farm households.² Available evidence suggests that these markets have performed fairly well in Afghanistan under very difficult conditions of war, internal conflict and poor infrastructure. **However, further development of efficient private markets is essential to translating food security at the national level (i.e., sufficient overall availability of food) into adequate availability of food at the local level.**

Because of the country's mountainous terrain, poor road infrastructure and tenuous security situation, internal marketing costs are very high. Available evidence suggests that regional markets for wheat are generally better integrated with markets in bordering countries than with other markets in Afghanistan. Only in years of good harvests are there significant flows of wheat between regions of the country, in particular from the northern region of the country to Kabul, and to other markets in the central and western regions.

Wheat imports (both commercial imports and food aid) are a major source of wheat supply and total food availability in Afghanistan, averaging 1.04 million tons annually from 2002/03 to

² Only about one fourth of all rural households in Afghanistan are self-sufficient in wheat.

2004/05 – that is 25 percent of total wheat supply over the period. Survey evidence and analysis of market prices suggest that since 2001 private sector imports (mainly originating from Pakistan and Kazakhstan) have involved substantial numbers of traders that respond quickly to shortages in domestic market supplies that would otherwise put upward pressure on prices. In this way, **private sector imports have helped to stabilize both market supplies and market prices in major cities throughout Afghanistan.**

Food aid inflows also add to domestic supplies, but because their levels are determined by donor decisions and administrative procedures and not by market forces, they have the potential to reduce market prices. While this can benefit consumers in the short term, there is also a risk that it can depress producer prices below the levels that would prevail in markets in the absence of food aid. Thus farmer incomes and incentives for production may be affected, both directly (through reduced market prices) and indirectly (through reduced public and private incentives for investment in agricultural technology). Market price analysis and the significant scale of commercial imports suggest that food aid inflows to date have not had significant disincentive effects on market prices in Afghanistan. However, as discussed below, the high cost of food aid relative to commercial imports suggests that whatever possible a cash-based alternative aid program would be preferable.

The experience of many countries indicates that efforts to stabilize food supply and prices through public sector procurement, storage and distribution of food can involve large fiscal subsidies while often having little sustainable impact on food security for the poor. **Minimizing such government direct interventions in food markets, while at the same time investing in market development through security, rule of law and improved infrastructure will encourage private sector investment and further development of efficient private food markets.**

Specifically, government policies can promote efficient markets by:

- **maintaining incentives for private sector imports through a policy of free trade** (no import licenses required apart from traders' registrations, and zero or minimal import tariffs and taxes),
- **maintaining free trade between and within provinces** (no movement restrictions or taxes on domestic trade flows, and no limits on the location, quantity or prices of food purchases or sales),
- **promotion of private sector investment in storage and food processing (e.g., wheat milling)** by improving the private sector investment climate and by **avoiding restrictions on privately held stocks** or the size of milling or other food processing operations, and
- **minimizing licensing requirements and avoiding imposition of price controls** (e.g., administratively set price ceilings on bread).

Food Consumption, Poverty and Food Aid

Poverty and household food insecurity are widespread in Afghanistan. According to data from the 2003 National Rural Vulnerability Assessment (NRVA), **almost half of the rural population had food expenditures less than what would be required to purchase adequate calories in**

2003³, and more than 20 percent of the rural sample reported actually consuming fewer than the poverty threshold of 2100 calories per day. Overall, wheat accounted for about 60 percent of calorie consumption for rural households, with poor households consuming a larger part of their calorie needs from wheat (over 70 percent). Comprehensive data on poverty or food consumption for urban areas are not yet available, though the limited evidence that exists suggests that a significant share of the urban population live in poverty, and experience acute seasonal malnutrition.

Because private sector wheat markets have functioned well in most of Afghanistan in recent years, food insecurity at the household level is largely a function of income poverty. To address this wide-spread and chronic poverty, rapid economic growth is required, creating jobs and putting purchasing power into the pockets of the poor. In order to provide support to those unable to work (children, the elderly, disabled and infirmed) well-targeted transfer programs can be considered. These could provide support in the form of food if that were the most readily available resource, but given the availability of food in the market, cash-based programs would be preferable. Among other things, food-based transfers typically entail high costs, especially when the food is brought in from far afield.⁴

Thus, **where food markets have the potential to function well if effective demand can be stimulated and availability of food is not a constraint, income-generating programs are generally a more efficient means of enhancing household food security** than are food-based programs. Examples of such programs in Afghanistan include the National Emergency Employment Programme (NEEP) and the micro-finance programs. Where food is not readily available and the market is reluctant to respond to demand (thus potentially cause a price hike), provision of food can be most advantageous, especially for the poorest.

In sum, to maximize the efficiency of resource use and minimize the risk of disincentives for domestic production and market development, food aid use should be restricted to situations where the comparative advantage over cash is clear, i.e., where:

- availability of food in local markets is a constraint on food security;
- the commodity distributed is an inferior good (i.e., a good for which quantity consumed falls as household incomes rise);
- the food aid commodity can be fortified, so that it carries additional nutritional benefits that are not easily available to households in their normal diets; and / or
- food aid imports are additional resources (i.e., in the absence of food aid, equivalent monetary resources would not be provided by donors).

Increases in household access to food will not necessarily translate into major improvements in **nutritional outcomes** for poor individuals. This is a particular concern for the most vulnerable – pregnant and lactating women, and young children. Here, there is also an important role for

³ The food expenditure cutoff used was Af. 4621/year (\$94/year), equal to the cost of purchasing 2100 calories/day of the typical basket of food items consumed by the poorest 40 percent of households in rural Afghanistan.

⁴ Average unit costs of cereals (mainly wheat) delivered in 2002-03 under the WFP Protracted Relief and Recovery Operations (PRRO) was \$332/ton, compared to an average commercial retail price in Kabul, Faizabad, Herat, Jalalabad, Kandahar, and Mazar-e-Sharif of \$207 per ton. This food aid cost figure includes estimates of all shipping and handling costs for cereals, but it does not include other (e.g., administrative) costs.

nutrition and health education, improvements in sanitation and quality of water, primary health care and other measures that promote absorption of nutrients and general health. Much international experience shows that increased educational status of women contributes to improved nutritional status of their children due to a better understanding of feeding practices and the importance of hygiene. In this way, tough choices should be considered across programs, for example the relative benefits and costs of fortification of foods vis-à-vis an adult education program, assuming that resources are insufficient to do both.

Food Policy Coordination

The elements of a food policy framework outlined above can make a significant contribution to greater food security in Afghanistan. This framework needs to have in-built flexibility to adapt to changes in the food system, at both domestic and global levels. It also should be responsive to participatory consultations with key stakeholders. Moreover, effective formulation and implementation of specific food policies will require the establishment of a robust nationwide information system to forecast and monitor key indicators (e.g., market price stability, domestic food production, household purchasing power, commercial food imports, international trade flows, nutritional status, etc.) together with the development of both private and public analytical capacities.

To this end, a high-level food policy framework committee may be formed consisting of representatives of the Ministries of Food and Agriculture, Commerce, Rural Rehabilitation and Development, and Social Affairs, together with responsible bodies for Disaster Management and National Statistics. The core economic ministries (Ministry of Economic Development and Ministry of Finance) might also be included. Such a committee can help Afghanistan continue to refine its broadly successful current policy framework in the context of the emerging National Development Strategy, and to avoid policy mistakes in responding to an evolving food security environment.

I. INTRODUCTION

In the last two decades, Afghanistan has endured protracted conflict, political upheaval, and natural calamities (including droughts) that have threatened the food security and indeed the very lives of much of the population. The country experience major disruptions to productive investment and activities, markets, public institutions and regular household incomes. However, a combination of international assistance, private international trade, migration, entrepreneurial activities and other household coping strategies (including sales and slaughter of livestock) helped to mitigate the extent of human suffering and loss of lives. Nevertheless, poverty and vulnerability remain widespread, both in rural and urban Afghanistan. Moving forward, coherent public policies and programs are required to increase the country's self-reliance, mitigate the risks of future shocks to households, and improve the nutritional status and overall human development of its population.

Numerous challenges lie ahead. Production of food, particularly food grains, is characterized by low input use and low productivity. Moreover, food production is highly variable because of fluctuations in rainfall and snow melt. Private markets face high transaction costs due to damaged or non-existent infrastructure (roads, telecommunications, storage facilities and market yards) in much of the country. Furthermore, poverty and malnutrition remain widespread. According to the National Rural Vulnerability Assessment (NRVA), in 2003, about half of the rural population had food expenditures less than the food-based poverty line and about 20 percent of households consumed less than 2100 calories/person/day.

Food Policy Objectives and Scope

The ultimate objective of food policy in Afghanistan is to ensure food security for all Afghans, where food security is defined as **access by all people at all times to the food needed for an active and healthy life** (1996 World Food Summit). Achieving this food security in turn requires that the three major components of food security are met: **Availability** of food (domestic food production, commercial imports, food aid and security stocks); **Access** to food (the ability to produce or purchase food at the household level, as determined by income, other resources, government transfer programs and market prices), and **Nutrition** (determined by actual food intake, health, sanitation and caring practices).

However, because food security, and in particular, access to food, is in part determined by incomes, a food policy could potentially encompass all policies and programs related to poverty reduction and economic development. Defining a food policy framework in this way would make it indistinguishable from the broader development strategy, and divert attention away from issues and policies more directly linked to food availability, access and utilization. Thus, while the eradication of extreme poverty, hunger and food insecurity remains the overarching objective of both food and overall development policy, this food policy framework focuses on policies related directly to **food production, food markets (both international and domestic trade), and consumption**, with special attention to wheat, the major food staple of Afghanistan.

Such a policy framework can help to guarantee consistency across a range of sectoral policies that impact on national and household food security. An evolving food policy framework would also complement other activities to promote a comprehensive national strategy for development and the reduction of poverty and vulnerability (National Development Strategy). It is not the intention of this paper to seek early closure on food policy issues, but instead to provide analysis and to identify key policy issues and options in support of a food policy dialogue

Key Issues

For Afghanistan, an effective food policy must address the key issues related to food security, including:

- The distinction between **food self-sufficiency** and food-security
- The role of private international trade in **stabilizing food-grain prices** – and what are the most efficient mechanisms
- Policies measures to maintain **incentives for domestic production** of food
- How best to ensure household food security, especially for the poor
- The **role of food aid** in Afghanistan's food security.

Outline of the Report

This report is designed to provide data, analysis, and lessons from experience of other countries to help address these key food policy issues. The report begins with a description of the structure and development of the Afghanistan food economy, as background to an analysis of government food policy issues. Chapter 2 covers food production in Afghanistan in the context of the country's diverse agro-ecologies and overall agricultural system. Food processing and marketing, including both international and domestic trade, are addressed in Chapter 3. These two chapters together describe the determinants of availability of food at both the national level and in local markets. Chapter 4 examines household access to food and utilization of food, including consumption patterns and government food programs. Finally, Chapter 5 discusses government policy options in terms of the broad policy issues identified above and presents some concluding observations.

II. FOOD PRODUCTION⁵

Food production is central to food security in Afghanistan because most of the food consumed in Afghanistan derives from domestic production, and because production of both crops and livestock is a major source of rural incomes. As a result of sustained damage to markets, technologies and infrastructure, however, growth in Afghanistan's agricultural production fell dramatically from the period of pre-conflict (1961-1978) to the period of intense conflict (1978-2001). Since 2002, however, there has been a strong recovery, coinciding with the end of a severe drought and improved security in many areas.

This chapter begins with a description of agro-ecological zones in Afghanistan that greatly influence the agronomic potential of various crops and livestock. Because wheat dominates agricultural and food production systems, the major focus of the chapter is on wheat production systems, trends and constraints. Other agricultural products (rice and other food crops, livestock and poppy) that together account for about half of area cultivated and a large share of agricultural incomes are covered in less detail.

Agro-ecological zones

Afghanistan has an arid to semi-arid climate, with annual rainfall ranging from 100 to 400 mm. Thus, availability of water is a limiting factor on agricultural production. More than half the country receives less than 300 mm of rain or snow, with substantial annual and seasonal variation. For most of the country, about half of the annual precipitation typically takes place in the winter months between January and March. Temperatures range from about -10° C in winter to about 34° C in the summer.

Food production systems vary tremendously across Afghanistan, according to both agro-ecological factors (e.g., elevation,⁶ soil type, rainfall, and availability of irrigation) and socio-economic factors (e.g., market proximity, infrastructure – roads, electricity, communications - security, level of incomes). Nonetheless, in spite of this diversity of systems and factors, it is useful to distinguish three broad regions: the northern plains (about one-fourth of national area), the central highlands (about half of national area), and the southwestern lowlands (the remaining one-fourth of national area).⁷

The northern plains region on the north side of the Hindu Kush range extends from Faryab province in the northwest to Takhar province in the northeast. Approximately one fourth of the land in this region is agricultural land (orchards, irrigated land and rainfed land), and the region accounts for 48 percent of national agricultural land (Table 2.1). About half of the agricultural land in the Turkestan plains (roughly one-half the total area of the region) is irrigated; crop production in the mountains in this region is mainly rainfed.

⁵ The discussions of irrigation, agricultural technology and constraints to agricultural growth in this chapter draw extensively from World Bank (2004) Afghanistan Agricultural Policy Note.

⁶ Altitudes vary from 150 to 8,000 meters; crops are cultivated at elevations as high as 4,000 meters.

⁷ FAO (1997) further divides the country into eleven agro-ecological zones. An approximate correspondence between the FAO zones and the three broad regions described above is given in Table 2.1. See also Appendix Table 1.

Table 2.1: Afghanistan Land Cover by Agro-ecological Zone (thousand hectares)

	Orchards	Irrigated	Rainfed	All Agric	Total	% Irrig/ Agric	% Agric/ Total	% Natl Agric	%Natl Area
1. Wakhan Corridor and Pamir Knot	-	5	-	5	1,110	100.0	0.4	0.1	1.9
2. Badakshan	6	72	720	793	4,124	9.1	19.2	9.8	6.9
3. Central Mountains	10	479	859	1,338	11,452	35.8	11.7	16.5	19.1
4. Eastern Mountains	13	452	164	616	5,082	73.4	12.1	7.6	8.5
5. Southern Mountains and Foothills	4	523	234	756	6,439	69.1	11.7	9.3	10.7
Mountains subtotal	33	1,531	1,977	3,508	28,208	43.6	12.4	43.2	47.0
6. Northern Mountains and Foothills	8	301	2,266	2,568	9,030	11.7	28.4	31.6	15.1
7. Turkestan Plains	16	648	643	1,291	4,890	50.2	26.4	15.9	8.2
Northern	24	949	2,910	3,859	13,920	24.6	27.7	47.5	23.2
8. Herat-Farah Lowlands	1	210	1	211	4,887	99.6	4.3	2.6	8.1
9. Helmand Valley-Sistan Basin	22	388	22	411	4,841	94.5	8.5	5.1	8.1
10. Western Stony Deserts	0	77	0	77	3,687	99.9	2.1	0.9	6.1
11. Southwest Sand Deserts	-	53	6	58	4,451	90.2	1.3	0.7	7.4
West/South	23	728	29	757	17,866	96.2	4.2	9.3	29.8
Total (excluding Herat)	80	3,208	4,916	8,124	59,993	39.5	13.5	100.0	100.0

Source: Adapted from Sloane (2001), p.4; authors' calculations.

Original data from Afghanistan Agricultural Strategy, FAO, Rome 1997, Land Management Report, Table 3, p. 28.

(Using data from 1972 land use by zone; data excludes Herat, for which data was unavailable at that time. Total area including Herat (4247.1 hectares) is 64,240 hectares.)

Agriculture in the Hindu Kush mountain region is largely confined to valleys which cut between the mountains. Only about 12 percent of the land in the region is agricultural land (excluding pasture land). Thus, although the region accounts for 47 percent of national area, it accounts for only 23 percent on national agricultural land. Overall, about 40 percent of agricultural land in this region is irrigated. The river valleys of the Eastern Mountains (including areas surrounding Kabul and Jalalabad) are highly productive, with significant levels of double-cropping. In the other parts of the central highlands, however, productivity is generally low. Here, water is the limiting factor, and most irrigation is supplied by underground water.

The west and south, nearly half of which is desert land, is the least densely populated region. Only four percent of the land is used for agriculture; nearly all of this land irrigated, since the area is generally too dry for rainfed agriculture. Overall, the region contains only about 15 percent of the country's agricultural land.⁸

Traditional surface systems, with intakes from rivers and streams, account for about 80 percent of the irrigated area. While these systems have generally survived, their community-based mechanisms for water management and maintenance have been adversely affected by local commanders who frequently have not respected water rights or the authority of the farmer elected and employed *mirabs* (water masters). This has had a significant impact on water distribution, both within some of these systems, and across irrigation systems along the same river (Sheladia Associates, 2004). Next in importance are larger modern irrigation systems, accounting for about 10 percent of irrigated area. Managed in the past through parastatal agencies, these have been greatly affected during the past twenty years as maintenance was neglected due to lack of staff, equipment and finances. Consequently only the upstream parts of the roughly 325,000 hectares of their command areas now receive proper irrigation. Karezes (a system of irrigation using underground tunnels), accounting for roughly five percent of irrigated area, have also suffered due to the war and some have been deliberately destroyed, sabotaged or mined to make rehabilitation difficult. The recent drought, coupled with a gradual disintegration of community responsibility, also led to indiscriminate groundwater pumping by some farmers leading to decline in groundwater levels in some areas and jeopardizing traditional springs and kareze fed supplies. Springs and wells constitute the remaining types of irrigation systems in the country.

At the macro level, recent estimates indicate that the country has, on average, about 70 billion cubic meters (BCM) of annual water resources of which 55 BCM is surface water and 15 BCM is groundwater (Sheladia Associates, 2004). Annual water use, of which over 95 percent is for irrigation, is estimated about 20 BCM, which means that not more than 30 percent of the water resources are presently being used. Estimates of irrigated area vary. As per 1993 FAO satellite maps, which are reckoned to be the most objective and reliable data available, the upper limit scenario is about 1.5 million hectares of land that is 'intensively irrigated' and about 1.6 million hectares of land that is 'intermittently irrigated' depending on water availability. Actual area irrigated in recent years has been considerably lower – the 2003 estimate is 1.3 million hectares were intensively irrigated (SAF, Annex on Natural Resources Management). There is also considerable regional variation in water availability and use, with the north, northeast, west and southwest regions of the country accounting for about half the estimated surface water resources and three-fourths of the irrigated area in the country (World Bank, 2004a; Sheladia Associates, 2004).

⁸ Note that the figures in Table 2.1 do not include Herat, since data from this province was unavailable at the time of the last major agro-ecological zoning exercise (1972).

Utilization of Agricultural Technologies

In spite of the frequent droughts and considerable economic and political uncertainties, Afghanistan's farmers have adopted new technologies on a large scale. According to a 2002/03 MAAH/MRRD/FAO/WFP survey covering 30 provinces, use of improved seeds, fertilizers and tractors is significant. Nearly 54 percent of wheat area in 2003 was sown with improved seed released in the last 10 years, while the rest was sown with local seeds or improved seeds introduced more than 10 years ago. There are regional variations, however, with less than 30 percent wheat area using improved seeds in the southwest and southern regions to over 75 percent in the east and northeast. Fertilizer use is also sizeable with a national average of about 180 kgs/ha in irrigated wheat, with regional variations ranging from an average of 345 kgs/ha in the central region to 80 kgs/ha in the southwest. Fertilizer is also commonly used for fruits, vegetables and other crops. Use of tractors is also significant and in 2002/03 about 46 percent of land was cultivated using a tractor compared to 39 percent in 2001/02. This increased use may have partly been prompted by the decrease in number of oxen due to the prolonged drought, although significant income for many farmers from the poppy sector (in Helmand particularly where more than 98 percent of land was cultivated using tractors) is also a factor influencing an increase in tractors.

Access to Land

In the Afghan context, ownership and access to land is complex.⁹ According to the 2003 National Rural Vulnerability Assessment survey, 85 percent of rural households cultivate land, 77 percent of households own land and 66 percent own irrigated land (Table 2.2).¹⁰ Pure tenants (those without any owned land) account for only eight percent of rural households. Sharecropping is not restricted to poorer households, though larger landholders may sharecrop out to pursue more profitable investments than offered by agricultural production (Grace and Pain, 2004). Nearly 70 percent of households not owning or cultivating land are poor (NRVA 2003), though landless households are also found among the non-poor: 18 and 15 percent of households in the top two consumption quintiles are landless (World Bank, 2005: Table 3.2).

Very few Afghan women own resources such as land and livestock and as a result, access to income generating opportunities are relatively fewer than is the case with men. However, contrary to the commonly held assumption that Afghan women have very little involvement in income generating opportunities outside the home, women in rural Afghanistan frequently play a significant role in agricultural production.

⁹ In this report, landed households include land owners who cultivate their own land and also share crop in or share crop out land. Sharecroppers owning no land are classified as landless.

¹⁰ Average household size varies little by the land and farm characteristics described here, so shares of total rural population are approximately the same as shares of all rural households described above.

Table 2.2: Afghanistan: Land Holdings by Rural Household Groups

	Households	Total Population	Irrigated		Irrigated		Irrigated	
			Land Owned	Land Owned	Land Operated	Land Owned	Land Owned	Land Operated
	(mns)	(%)	(ha/hh)	(ha/hh)	(ha/hh)	(%)	(%)	(%)
Irrig Land Owners Large	0.14	6.7	30.92	5.56	6.42	31.6	47.4	28.6
Irrig Land Owners Small	1.29	60.7	5.32	0.67	1.16	50.3	52.6	47.8
Irrigated Land Tenants+	0.11	4.9	0.96	0.00	1.28	0.8	0.0	4.6
Non-irrig Land Owners Lrg	0.07	3.3	21.45	0.00	4.38	10.9	0.0	9.7
Non-irrig Land Owners Sm	0.17	7.5	5.24	0.00	1.42	6.5	0.0	7.6
Non-irrig Land Tenants*	0.06	2.8	0.00	0.00	0.87	0.0	0.0	1.8
Total Farmers (Cultivators)	1.84	85.8	7.40	0.89	1.70	100.0	100.0	100.0
Total Rural Population	2.17	100.0	6.28	0.75	1.44	100.0	100.0	100.0

*Non-irrigated Land Owners (tenants) are farmers with no irrigated land.

+ Irrigated land (tenants) own no irrigated land but may own some rainfed land.

Source: Calculated from NRVA 2003 data.

Major Crops

Wheat

Wheat is the major food staple in Afghanistan, as well as the major crop. Area planted to wheat in 2002 was 2.3 million hectares or about 68 percent of total cultivated area, and 1.7 million hectares in 2003. Over the 2002 to 2004 period, irrigated wheat area averaged about 1.0 million hectares, approximately 10 percent more than rainfed wheat area. However, since yields on irrigated land are more than twice those on rainfed land (2.3 tons/ha versus 0.9 tons/hectare) of the same period, production on irrigated land accounts for about 70 percent of total national production. Average yields of irrigated wheat vary little across region; a similar pattern is observed for rainfed wheat (Table 2.3).

About half of national wheat output is produced in the northern plains and foothills region, where both irrigated and rainfed crops are grown.¹¹ This region is the major surplus region of Afghanistan, producing an estimated 283 kgs/capita of wheat (average 2002 and 2003), compared to a national average of 157 kgs/capita. In the mountain region of the country, over 85 percent of production is irrigated. Although the region accounts for 20 percent of national production, it is a deficit region (producing only 67 kgs/capita) due to the presence of large urban populations in Kabul and Jalalabad. The west – southwest region accounts for about 30 percent of wheat production, and produces approximately as much as it consumes (about 189 kgs/capita of production). Apart from some rainfed wheat cultivated in Herat and Badghis provinces, almost all of the region's wheat is irrigated.

¹¹ According to NRVA 2003 data, nationally about 60 percent of rainfed wheat production is by farmers with no irrigated land; 86 percent of the country's rainfed wheat production is from the North.

Table 2.3: Wheat Production in Afghanistan by Region, 2002 and 2003

Region	IRRIGATED Wheat			RAINFED Wheat			Total Wheat			Population (mns)	Prod./cap (kgs/person)
	Area	Yield	Prod.	Area	Yield	Prod.	Area	Yield	Prod.		
	(000'ha)	(tons/ha)	(000' tons)	(000'ha)	(tons/ha)	(000' tons)	(000'ha)	(tons/ha)	(000' tons)		
2002											
Northern	464	1.9	901	449	0.8	351	913	1.4	1252	6.3	197.2
Mountains	225	2.1	477	38	0.8	31	263	1.9	508	10.6	47.7
West / SW	356	2.1	732	210	0.9	194	566	1.6	926	5.2	177.9
Total	1045	2.0	2110	697	0.8	576	1742	1.5	2686	22.2	121.0
2003											
Northern	441	2.9	1279	984	1.1	1090	1425	1.7	2369	6.5	366.2
Mountains	308	3.0	911	45	0.5	23	353	2.6	934	10.8	86.1
West / SW	309	2.7	825	207	1.1	232	516	2.0	1057	5.3	199.3
Total	1058	2.8	3015	1236	1.1	1345	2294	1.9	4360	22.6	192.8
Growth Rate (2003 / 2002)											
Northern	-5.0%	49.4%	42.0%	119.2%	41.7%	210.5%	56.1%	21.2%	89.2%	1.9%	85.7%
Mountains	36.9%	39.5%	91.0%	18.4%	-37.3%	-25.8%	34.2%	37.0%	83.9%	1.9%	80.4%
West / SW	-13.2%	29.8%	12.7%	-1.4%	21.3%	19.6%	-8.8%	25.2%	14.1%	1.9%	12.0%
Total	1.2%	41.1%	42.9%	77.3%	31.7%	133.5%	31.7%	23.3%	62.3%	1.9%	59.3%

Note: Years shown in the table correspond to the calendar year of harvest. Most wheat is planted in November-December and harvested the following April-May.

Source: MAAH/FAO National Crop Output Surveys, 2002 and 2003.

Wheat production has varied considerably in recent years because of both drought and deterioration in irrigation infrastructure (Table 2.4 and Figure 2.1). After severe droughts in 2000 and 2001, adequate rainfall and snow melt in late 2002 permitted a large expansion in area sown in November-December for the wheat crop harvested in April-May of 2003. Total wheat production in 2003 was estimated at 4.36 million tons, a record harvest, 62 percent higher than in 2002. Slightly over half (54 percent) of the total 1.7 million ton gain came from increases in irrigated wheat production (1 percent gain in area and a 43 percent increase in yield). The remaining gain in production derived from a near doubling of upland area and a 32 percent gain in upland yields. Production estimates for 2004 were considerably less, however, only 2.29 million tons, a 47 percent decline relative to the 2003 estimate.

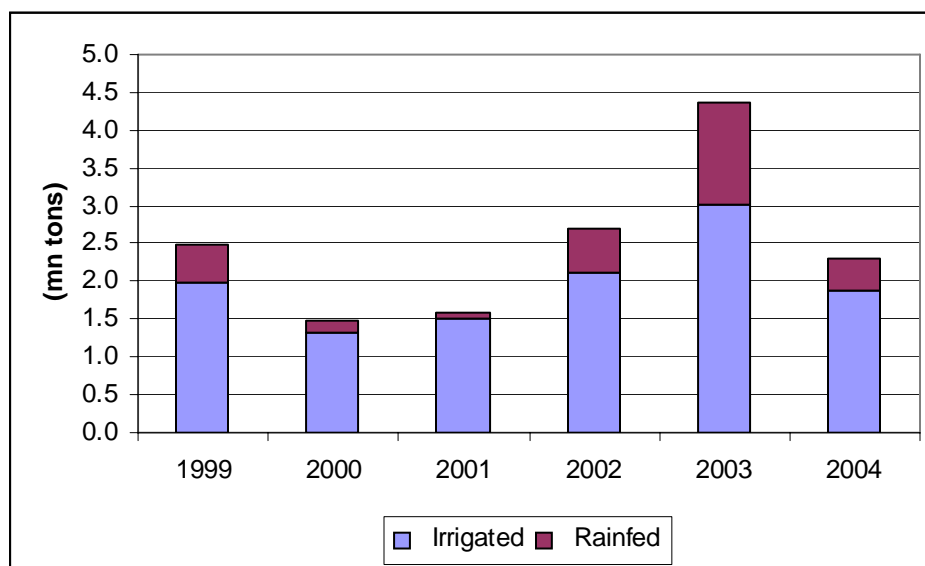
Table 2.4: Area, Production and Yield of Wheat in Afghanistan, 1999-2004

	1999	2000	2001	2002	2003	2004
Wheat Area (th. hectares)	2027	2029	1779	1742	2294	1766
Irrigated	1196	1189	1156	1045	1059	969
Rainfed	831	840	623	697	1235	797
Wheat Production (th. tons)	2500	1469	1597	2686	4361	2293
Irrigated	1988	1329	1514	2110	3017	1867
Rainfed	512	140	83	576	1345	426
Wheat Yields (tons/ha)	1.2	0.7	0.9	1.5	1.9	1.3
Irrigated	1.7	1.1	1.3	2.0	2.8	1.9
Rainfed	0.6	0.2	0.1	0.8	1.1	0.5

Note: Years shown in the table correspond to the calendar year of harvest. Most wheat is planted in November-December and harvested the following April-May.

Source: FAO/WFP Crop and Food Supply Assessments 2003 and 2004.

Figure 2.1: Afghanistan Wheat Production, 1999 to 2004



Evidence from the NRVA, however, suggests that the gains in wheat production between 2002 and 2003 as indicated in the FAO-WFP Crop Assessments may have been over-stated. Contrary to these official production estimates derived from crop surveys, NRVA data suggest that the total gain in production was only about 14 percent, with little change in yields between 2002 and 2003. Moreover, the large 62 percent increase in production is inconsistent with available price and trade data.¹² The most likely scenario is that yield estimates for irrigated wheat were underestimated in 2002 (and earlier), and that the production increase between 2002 and 2003 was on the order of 25 percent (due mainly to an increase in non-irrigated production).¹³

The estimated irrigated wheat yields in Afghanistan averaged 1.8 tons/hectare in 2002 and 1.9 tons/hectare in 2004 (FAO/WFP Crop Assessments, Table 2.4), significantly less than averages of about 2.6 to 3.0 tons/hectare in neighboring Pakistan, Uzbekistan and Iran. Reported irrigated wheat yields approximated those of these neighboring countries in 2003, however (2.8 tons/hectare). Rainfed wheat yields in 2004 (0.53 tons/hectare), were also lower than yields in neighboring countries. Even in the major wheat producing provinces of the north and northeast regions, average irrigated yields in 2004 were only about 2.2 tons/ha (and only about 0.6 tons/ha for rainfed wheat).

Relatively low use of improved wheat seed varieties is one reason for lower average yields. According to the agricultural survey of 2002, only about half (53 percent) of farmers used improved seed introduced in the last ten years. The remainder of the seed used was either indigenous seed or improved seed introduced more than ten years earlier, including the “zardana” variety widely used in Northern Afghanistan.¹⁴ There is substantial use of fertilizer, however, which is imported by the private sector. In 2002, an average of 180 kilograms of fertilizer per hectare, (mainly urea and di-ammonium phosphate) was used on irrigated wheat, totaling an estimated 187 thousand tons total on wheat alone.

Thus, there would appear to be substantial scope for raising wheat yields and production in the country, provided security and economic incentives are favorable. Nonetheless, self-sufficiency in wheat is not necessary for food security, provided that the country has sufficient purchasing power to purchase wheat on international markets and market flows are not inhibited by excessively high import prices, export bans in neighboring countries, destruction of transport infrastructure (roads, bridges) or physical insecurity that effectively prevents trade.¹⁵ Moreover, cultivation of higher-value crops may result in higher farm incomes.

Other grains

Production of rice (291 thousand tons of milled rice equivalent), barley (410 thousand tons) and maize (310 thousand tons), together total only 525 thousand hectares and 1.01 million tons of

¹² The relatively small decrease in prices between 2002/03 and 2003/04 is unlikely to have led to only a 25 percent increase in per capita consumption implied under a no net trade scenario, suggesting that a 62 percent production increase would have resulted in a large exportable surplus. See Annex 1.

¹³ The Swedish Committee for Afghanistan (SCA) agriculture survey conducted in the early 1990s also indicated that actual yield levels were higher than official estimates. See Maletta, H. and Favre, R. (2003).

¹⁴ Unfortunately, some of the seed provided in the emergency distribution programs in 2002 and 2003 may have been of low quality. The amount of seed procured for distribution in autumn 2002 (23,000 tons) was nearly five times greater than what the contracted farmers were able to produce with a minimum quality control standard certified by FAO.

¹⁵ Moreover, policies to provide additional incentives for wheat production (government procurement at high prices, import bans that raised domestic prices, subsidies explicitly targeted to wheat production), would involve pulling economic resources (land, labor) away from more productive uses.

grain, less than one quarter of both area and production of wheat in 2003. Production of paddy, the second most important cereal for food consumption, is concentrated in the northeast, (53 percent of Afghanistan's production in 2003). Maize is grown as a summer crop following winter wheat, particularly in eastern and central Afghanistan. Barley is mainly grown in higher altitude areas of central and northeast Afghanistan, including Badakshan. Most maize grain (about 60 percent) and barley (about 80 percent) are used as feed.¹⁶ These crops are also used as fodder for animals.

Non-Cereals

The important non-cereals are pulses, oilseeds, fruits, vegetables, fodder, and poppy. Area under poppy has increased dramatically in recent years and in 2003 was estimated to cover 80,000 hectares which is equivalent to about two percent of cultivated area or about one percent of arable area.¹⁷ Of the other non-cereal crops, fruits and vegetables are seen as particularly important, both in terms of past significance and also future cash crop prospects. The fruits sub-sector, which in the 1970s was a significant part of the Afghan economy contributing over 40 percent to total export earnings, at present covers about 2 percent of cultivated area with grapes, almond, apple, apricot and pomegranate leading the acreage. There has been a decline in area under fruit orchards in recent years ascribed mainly to conflict during the Taliban period and the drought. Most fruits are now for domestic consumption, with exports constrained due to lack of market access arising mainly from weak post-harvest management practices, lack of quality control, and lack of finance.¹⁸ Vegetables, increasingly preferred because of their short growing cycle in an uncertain socio-economic environment, also cover about 2 percent of cultivated area with the main ones being melons, watermelons, potatoes, onions and tomatoes. Fruits and vegetables are major cash crops, with marketed proportions varying from 50-70 percent of production (FAO, 2003). Cotton, which used to be significant in the 1970s, has declined to negligible levels, mainly because of the collapse of the domestic cotton industry.

Opium

2.22. Opium poppy cultivation, although illegal, is widespread in Afghanistan and has been increasing in Afghanistan in recent years. Including processing and trade, poppy (and opium) account for an estimated one-third to one-half of Afghanistan's gross domestic product. According to the Afghanistan Opium Survey 2004 (UNODC, 2004), production may involve as many as 2.3 million people, 10 percent of the total population. NRVA (2003) data show only 5 percent of rural households cultivating poppy (8 percent of households in the northern region), (Table 2.5).

¹⁶ 1998/99 FAO/WFP Crop and Food Supply Assessment.

¹⁷ The growth of the poppy economy and its related complex issues has recently been analyzed in detail in World Bank, 2004a.

¹⁸ Afghan dried fruits (mainly almonds and apricots) accounted for 60% of the world market in 1982; this declined to 16% by 1990 and presently is an insignificant 0.3%. See: ICARDA, 2003a; International Trade Center, Switzerland (www.intracen.org).

Table 2.5: Poppy Cultivation in Afghanistan, 2003 (NRVA Survey Data)

Location and type of farmer	No. of farmers ('000)	% of Households	Poppy area ('000 ha's)	Poppy area cultivated (ha/HH)	Total land cultivated (ha/HH)	Poppy /total land cultivated (%)	Poor HHs (%)
All Afghanistan							
Poppy farmer	119	5	46.51	0.39	1.75	22	34
Non-poppy farmer	2054	95	-	0	0.88	0	52
Total	2173	100	46.51	0.30	0.92	2	51
Northern							
Poppy farmer	58	8	22.79	0.39	2.34	17	20
Non-poppy farmer	682	92	-	0	1.70	0	52
Total	741	100	22.79	0.38	1.75	2	49
West/South West							
Poppy farmer	12	3	2.94	0.24	0.55	44	23
Non-poppy farmer	457	97	-	0	0.55	0	52
Total	467	100	2.94	0.13	0.55	1	51
Mountains							
Poppy farmer	49	5	20.77	0.43	1.33	32	53
Non-poppy farmer	915	95	-	0	0.42	0	51
Total	964	100	20.77	0.29	0.47	5	52

Source: Calculated from NRVA (2003) data.

Poppy cultivation has relatively little direct effect on total food crop cultivation at the national level. According to the UNODC, poppy area cultivated was about 80,000 hectares in 2002/03 and 131,000 hectares in 2003/04, only 3.5 –5.0 percent that of wheat, and only about 1 percent of total arable land. Although opium is a very labor-intensive crop (350 days/hectare), particularly in harvesting, increased poppy cultivation does not appear to have significantly lessened labor availability for wheat. According to NRVA data (which may understate poppy area cultivated given the crop's illegal status), among poppy farmers, average poppy area is only 22 percent of total area cultivated.

Prices of opium fluctuate enormously, however, and have fallen steeply in the last two years from \$350/kg in 2001/02 to \$283/kg to only \$92/kg in 2003/04. Yields of poppy also fell by about 30 percent in 2004, so that gross value of output per hectare fell from \$12,700/ha in 2003 to \$2900 in 2004. Using these opium yield estimates, gross revenues of poppy were 7.5 times those of wheat in 2004 (and 27 times those of wheat in 2003). Assuming lower opium yields equal to about one-third those of UNODC, gross revenues of poppy were 8.7 times those of wheat in 2003 (Molla, 2003) and about 2.3 times those of wheat in 2004 (Table 2.6).

Table 2.6: Gross Revenues from Opium and Wheat Cultivation

	Opium Yield (kg/ha)	Opium Price (\$/ton)	Opium Revenue (\$/ha)	Wheat Revenue (\$/ha)	Opium / Wheat Revenue
2003 UNODC Survey	45	283	12735	470	27.1
2004 UNODC Survey	32	92	2944	390	7.5
Low Opium Yield Est. 2003 ^a	14	283	3962	456	8.7
Low Opium Yield Est. 2004 ^b	10	92	916	390	2.3

^a Molla (2003).

^b Opium yield calculated using percentage change from UNODC and Molla (2003) figure for 2003 opium yield.

Because of the high value of poppy, it can be a major source of income for households that cultivate the crop, though some analysis suggests that after deducting for costs of hired labor, income earned from poppy for some farmers is not large (Mansfield, 2002). Nationally, one-third of poppy farmers were poor according to NRVA (2003) data, though on average, consumption per capita of poppy farmers was 25 percent higher than that of other farmers. Nonetheless, cultivation of poppy involves substantial risks, including possible eradication of the crop by authorities. Moreover, involvement of drug traders in local society often results in threats, intimidation and violence against farmers and other community members.

Livestock

Livestock is a major source of food and income for Afghan farmers, traditionally being an integral part of most farming systems in the country. Range pasture land covering about 45 percent of total land area has traditionally supported a large livestock population, with animals being the only source of income for some groups such as the Kuchi nomads. Livestock population declined in the 1980s but had recovered to pre-war levels by the mid-1990s. However, the years of drought from 1999-2001 have had a serious adverse impact. As per a 2003 census the estimated livestock population is about 34 million (including 12 million of poultry), which is a sizeable decline from estimates in the 1990s. By 2003 the number of cattle and poultry per family had fallen to one-third of the 1995 figure, with numbers of sheep and goats per family suffering an even steeper decline (Table 2.7).

Table 2.7: Livestock Population per Family

	1995	1998	2003
Cattle	3.7	2.5	1.2
Sheep	21.9	14.2	2.9
Goats	9.4	5.8	2.4
Donkeys	1.1	0.7	0.5
Camels	0.4	0.2	0.1
Poultry	11.6	6.8	5.0

Source: FAO, National Livestock Census, Interim Report, 2003.

NRVA 2003 data presented in Table 2.8 show that livestock ownership is highest among large land owners, though these data apparently miss the nomadic Kuchi - about 10 percent of the total rural population. Average livestock ownership is highest in the Northern regions (8.4 sheep and 3.2 cattle per household) and lowest in the West/SW region (1.4 sheep and 0.7 cattle per household).

Table 2.8: Afghanistan Livestock Ownership, 2003

	Households (mns)	% Total Population	Cattle Owned per HH	Goats Owned per HH	Sheep Owned per HH	Camels Owned per HH	Donkeys Owned per HH	Poultry Owned per HH
Large Land Owners	0.21	10.0	6.96	6.08	20.57	0.12	2.54	14.35
Small Farmers/Tenants	1.64	75.8	1.43	1.95	2.31	0.01	0.69	6.38
Non-Crop Livestock Owners	0.22	9.5	0.53	2.44	3.59	0.11	0.65	5.42
Rural Non-Farm	0.11	4.6	0.00	0.00	0.00	0.00	0.00	7.46
Total Livestock Owners	2.17	100.0	1.80	2.30	4.08	0.03	0.83	7.10
Northern	0.74	32.7	3.23	3.49	8.40	0.05	1.39	8.68
West/SW	0.47	21.3	0.72	1.74	1.44	0.01	0.52	5.70
Mountains	0.96	46.1	1.22	1.67	2.03	0.03	0.54	6.53

Source: Calculated from NRVA 2003 data.

Constraints on Agricultural Production¹⁹

Growth of agricultural production faces several major constraints, including lack of assured and timely irrigation, inadequate knowledge of improved production and post-harvest technologies, lack of access to credit, and insufficient access to markets.

Irrigation

Lack of assured and timely water supply at the farm level through the existing irrigation system is perhaps the most important constraint to agricultural growth. Irrigation infrastructure, as well as many supporting community based and government institutions, have seriously deteriorated or broken down due to years of war, strife and drought. Addressing irrigation related issues is high on the government's agenda, as is evident from current programs of rehabilitation of irrigation infrastructure by MIWRE using external assistance.

Substantial scope exists for improving the quality (timely delivery) and expanding the quantity (area under assured irrigation) of irrigation, thereby reducing vulnerability to droughts and improving water supply in Afghanistan. Current best estimates of the irrigation potential are that 3.54 million hectares could be developed through rehabilitation and development of new infrastructure such as storage (SAF, 2004). Of this total 1.035 million hectares have never been irrigated but could be brought to intensive irrigation through development of new irrigation schemes. Of the remaining 2.4 million hectares, projects currently funded by external assistance (as of mid-2004) provide resources to rehabilitate infrastructure serving about 0.43 to 0.55 million hectares. Another 0.5 million hectares, mainly for areas with intermittent irrigation and land that has never been irrigated is planned to be developed by 2015 under the National Long Term Irrigation and Power Program. Further expansion will take place as absorptive capacity grows and management and technical skills develop. Recognizing the centrality of water, the Government of Afghanistan plans to invest about US\$2.35 billion between 2004 and 2015 in four sub-programs related to water resources and irrigated agriculture.

Three **major institutional and policy reforms** are also being implemented: adoption of a river basin approach to manage water resources; restructuring of MIWRE and privatization/ liquidation

¹⁹ For further details, see World Bank 2004 (Afghanistan Agricultural Policy Note).

of parastatals involved in irrigation construction and maintenance; and adoption of a participatory approach involving water user groups in the rehabilitation, as well as O&M of all irrigation schemes in the future.

More attention should also be paid to groundwater resources. Groundwater tables should be regularly monitored to curb indiscriminate exploitation of groundwater resources, especially in vulnerable areas. New regulations to curb groundwater extraction may not be enforceable in the prevailing uncertain security situation. Experience suggests that community participation and peer pressure can often be more effective in managing groundwater resources than policing by government staff. Efforts to integrate watershed development with irrigation improvement are also needed, requiring closer technical and financial analysis of watershed development options.

Agricultural Research and Extension

Productivity growth in agriculture is based largely on application of science, technology and information. Studies consistently show high returns to investments in agricultural research in developing countries, averaging over 40 percent.²⁰ Research on comparative returns to public investments in R&D, irrigation, roads, education and electricity in China and India showed that public investment in India and the People's Republic of China showed that R&D contributed the most to promoting agricultural growth in both countries (Fan, Zhang and Zhang, 2002). These results suggest that while complementary investments in infrastructure are necessary, investment in agricultural research and extension is a key element in enhancing a country's competitive advantage by reducing production costs, improving product quality, and generally increasing efficiency along the commodity chain.

Prior to the conflict, Afghanistan had a substantial agricultural research system which, at its peak, carried out its functions through 24 research stations and over 1000 staff, of which 25 percent were technical research staff. This system is now largely dysfunctional as a result of widespread infrastructure destruction and loss of skilled staff. The agricultural extension system, which used to operate through about 400 extension units spread across the nation, is in a similar state of disrepair. Capacity building efforts need to focus on updating technical skills but also developing new skills related to management, monitoring and evaluation, participatory approaches, and marketing.

In order to revamp agricultural research and extension in Afghanistan, a national research strategy and a national extension strategy are needed. This new strategy should include a focus on adaptive research rather than basic research, greater participation by farmers in defining research priorities, and more emphasis on post-harvest issues. Private service delivery of extension services, which has been shown to be a more efficient way to serve clients in various programs in Chile, Bangladesh and India (World Bank, 2004b), may also be explored. Decentralization of extension services can facilitate user participation and a more responsive system. Sustainable financing mechanisms will also need to be developed.

Rural Credit

Rapid farmer adoption of improved technologies requires a functional rural financial system. In view of the ineffectiveness of directed lending to agriculture through publicly owned institutions, the government has decided to dissolve the Agricultural Development Bank. Currently, traditional sources (moneylenders, traders, family, friends, etc.) are the main source of

²⁰ Alston et. al., (1998).

agricultural credit, together with various NGO led microfinance initiatives. The Micro-Finance Support Facility of Afghanistan (MISFA) begun in 2003 is designed to be a primary apex facility for meeting rural credit needs. Administrative costs in the first year of operation were high, however, in part because of expenditures on establishing new facilities.

Establishing a viable rural financial system in Afghanistan is a medium term rather than short-term process, with financing for agriculture recognized as part of the wider rural finance market. Possible steps to building a viable rural financial system include:²¹

- In the short term, establish an effective system of NGO and microfinance registration and monitoring, facilitate entry and expand outreach.
- In the medium term, adopt new NGO legislation that encompasses microfinance activities, and other savings and credit associations; entrust larger, well managed institutions to expand their range of products, including deposit taking among members.
- In the long run, consider transformation of some of the larger microfinance NGOs into banks or non-bank financial institutions.

²¹ World Bank, 2004b.

III. INTERNATIONAL TRADE, DOMESTIC MARKETS AND AVAILABILITY OF FOOD

Food markets play a crucial role in food security, linking domestic producers and international suppliers to consumers. Available evidence suggests that these markets have performed fairly well in Afghanistan under very difficult conditions of war, internal conflict and disruption of infrastructure. Nonetheless, transport and other marketing costs remain high, and improved efficiency of food markets can potentially benefit both producers and consumers.

This chapter begins with a discussion of international trade, including both commercial trade and food aid imports, which together with domestic production determine total availability of food in Afghanistan. The chapter then covers the structure and performance of domestic markets, focusing on the size of the marketed surplus, regional flows, the wheat milling sector and marketing costs. Finally, specific policy options are analyzed, including food aid, public sector procurement and distribution, and emergency food stocks for price stabilization. As in the chapter on food production, much of the focus of this chapter is on wheat, the major food commodity.

International Trade and Total Availability of Foodgrains

Wheat imports (both commercial imports and food aid) are a major source of wheat supply and total food availability in Afghanistan, averaging 780 thousand tons annually from 1999/2000 to 2003/04, (24 percent of total wheat supply over the period) (Table 3.1). About one-third of these wheat imports (252 thousand tons per year) have been through food aid, mainly in the form of wheat flour. Following the record 2003 harvest, however, food aid flows were still about 250 thousand tons (down from 360 thousand tons in 2002/03), out of an estimated total imports of 550 thousand tons.

Table 3.1: Afghanistan: Wheat Availability, 2000 - 2004

	2000	2001	2002	2003	2004	Average ('000 tons)	2002-04 (share)
Availability	2357	2817	3546	4912	4005	4154	100%
Production	1469	1597	2686	4362	2293	3114	75%
Imports	888	1220	860	550	1712	1041	25%
Commercial	650	908	500	300	1300	700	17%
Food Aid	239	312	360	250	412	341	8%

Note: Years indicate calendar year of main harvest (April/May). Data on imports and availability are for the following July/June fiscal year. For example, the figures for 2004 indicate production in April/May 2004 and availability for 2004/05. Data limitations mean that these estimates may carry significant margins of error. 2004 data are preliminary.

Source: FAO/WFP Kabul.

There is considerable uncertainty surrounding these estimates of production and imports, however. Wheat production estimates for 2003 vary by 1.63 million tons, with NRVA estimate (2.73 million tons) 38 percent less than the FAO crop assessment figure (4.36 million tons), (see Box 3.1). Uncertainties regarding the volume of import trade are smaller in absolute terms, but there is no reliable independent customs data on Afghanistan's wheat imports.

According to FAO data (based on exports of other countries to Afghanistan), private commercial imports of wheat in 2002/03 equaled 500 thousand tons, and total commercial imports of cereals, (including 151 thousand tons of rice from Pakistan), were 651 thousand tons.²² By comparison, total food aid imports were only 394 thousand tons, (360 thousand tons of wheat). Thus food aid accounted for only 42 percent of total wheat imports and 38 percent of total grain reports.

Box 3.1: Estimates of Total Availability of Wheat

There is substantial uncertainty regarding the levels of total wheat supply (domestic production plus imports) and domestic consumption per capita, in large part because of uncertainties in the underlying data on production and population.¹ Using the official FAO production estimates for 2003 of 4.36 million tons and CSO population estimates, per capita availability of wheat was 205 kilograms/person. By comparison, per capita consumption is 131 kgs/person in Pakistan and 170 kgs/person in Iran. Moreover, NRVA one-week consumption recall data extrapolated over a one year period would imply annual consumption of 163 kilograms/capita for rural households (which account for about 70 percent of the population). Since the survey was conducted in the months just following the record harvest of mid-2003, it is likely that annual rural wheat consumption is in fact lower.

However, NRVA production estimates of 2.73 million tons and CSO population estimates imply a national (both urban and rural) per capita consumption of only 140 kgs/person. In addition, NRVA-based production estimates for 2002/03 of 2.44 million tons (only 12 percent less than in 2003/04), would imply an increase in per capita consumption of only 3 percent between the two years, even assuming that population increased only by only 2 percent. Such a small increase in per capita consumption would appear to be inconsistent with an 11 percent increase in incomes (as measured by total GDP), a positive income elasticity of demand and a decline in real prices in major markets.²

Thus, production in 2002 and 2003 likely lies in between the NRVA and FAO estimates. Using an average of the estimates for 2003 production (3.55 million tons) and assuming that total population increased by 1.0 million between 2002/03 and 2003/04 (consistent with estimates that Kabul's population alone grew by 1.0 million refugees between the start of 2002 and mid-2004, World Bank 2005), results in a per capita availability of 168 kilograms/person/year. Assuming a 25 percent increase in production between 2002 and 2003, (slightly more than the estimated 23 percent increase in production implied if one assumes that irrigated wheat yields did not change between these two years – see Annex 1), per capita consumption increased by about 9 percent between 2002/03 and 2003/04.

¹ Trade figures are also uncertain since accurate Afghanistan customs data does not exist. Import estimates through 2002/03 are based largely on export data of neighboring countries.

² Given an estimated 10 percent decline in real prices, and assuming, conservatively, an income elasticity of demand of 0.5 for wheat products and an own-price elasticity of demand of -0.5, per capita demand for wheat would rise by 10.6 percent.

Likewise, over the 2000/01 – 2002/03 periods, food aid accounted for only 31 percent of total wheat imports and 26 percent of total grain imports (Table 3.2). Although in 2003/04, food aid wheat declined somewhat to 250 thousand tons, commercial imports also declined to 300 thousand tons, and the share of food aid in total imports rose was 45 percent, essentially the same as in 2002/03.

²² Earlier WFP estimates placed commercial wheat imports in 2002/03 at 911 thousand tons, (18.3% of estimated total availability). (Neun and Fitzherbert (2003);, vol 1 p. 52 table).

Table 3.2: Afghanistan: Grain Imports, 1999/00 - 2003/04

	1999/00	2000/01	2001/02	2002/03	2003/04	Average 2000/01-03
Commercial Imports						
Wheat and wheat flour ^a	290	650	908	500	300	686
Kazakhstan	283	333	173	191	n.a.	233
Pakistan	0	300	716	204	n.a.	407
Other	6	17	19	105	n.a.	47
Rice	206	297	247	151	n.a.	232
Pakistan	184	297	179	151	n.a.	209
Other	22	0	68	0	n.a.	23
Other Cereals	62	19	14	0	n.a.	11
Total	558	966	1169	651	n.a.	929
Food Aid						
Food aid wheat and flour ^a	102	239	312	360	250	304
Food aid total grain	109	246	337	394	n.a.	326
Food aid/Total Imports						
Wheat and wheat flour ^a	26%	27%	26%	42%	45%	31%
Total grain	16%	20%	22%	38%	n.a.	26%

Note: Wheat flour quantities are converted to wheat equivalents.

n.a. denotes data not available.

Source: FAO and World Food Programme /Kabul.

Pakistan and Kazakhstan are the major source of commercially imported wheat, mainly in the form of wheat flour. In recent years, Pakistan has typically exported around 600 thousand tons of wheat flour to Afghanistan through formal and informal channels. These exports have been officially encouraged in years of good harvests. In spite of movement restrictions on wheat in Pakistan's Punjab province to facilitate government wheat procurement, wheat flour exports continued in 2004. Kazakhstan has the largest wheat surplus in the region (Table 3.3), and exports to Russia, Iran and the world market, as well as to Afghanistan. Wheat from Kazakhstan, which has no common border with Afghanistan transits through Uzbekistan, Tajikistan or even Iran. Iran is the largest wheat importer in the region, with imports of 6 million tons, almost ten times the magnitude of Afghanistan's wheat imports (Annex Table A4.1).

Table 3.3: Wheat Production and Consumption in South and Central Asia, 2001

	Population	Per capita Income*	Production	Net Imports	Per capita Cons.
	(mns)	(US\$)	(mn tons)	(mn tons)	(kgs)
Afghanistan*	22.6	300	3.5	0.70	172.1
Pakistan	145.0	440	19.0	-0.69	131.1
Iran	71.4	1680	9.5	6.36	169.9
Kazakhstan	16.1	1260	12.7	-3.21	125.8
Kyrgyzstan	5.0	270	1.2	0.07	210.0
Tajikistan	6.1	180	0.4	0.35	121.3
Turkmenistan	4.8	750	1.8	0.28	211.4
Uzbekistan	25.3	360	3.8	0.53	155.1
Regional Ave	273.7	801	48.3	3.7	145.8

Notes: Rice in milled equivalents; Afghanistan per capita income is 2002 GDP/capita including opium. Official GDP/capita (without opium) for 2002 is \$186/person. Other country per capita income figures are Gross National Income/capita for 2000; Afghanistan production data is for the 2003 harvest using best estimates (see Annex 1.) Afghanistan calories per capita from NRVA (2003) rural average; note that wheat consumption in NRVA is 162.6 kgs/person/year.

Sources: FAO Food Balance Sheets (FAOSTAT) and NRVA (2003); World Bank (2004a) and World Bank World Development Indicators.

Smaller quantities of rice (150 to 300 thousand tons per year in recent years) are also imported, almost all from Pakistan. With rice production equal to 291 thousand tons (milled rice equivalent) in 2003 (FAO data), rice imports accounted for one third to one half of total rice supply, and 4-7 percent of total rice and wheat availability (assuming wheat availability of about 3.6 million tons).

Domestic Food Markets

NRVA data indicate that total marketed wheat in 2003 was 683 thousand tons, equal to 25 percent of production (2.73 million tons) and 22 percent of total consumption (3.1 million tons). The northern region of the country accounts for about 90 percent of total marketed grain, (620 thousand tons) in 2003. Only minimal quantities of domestic wheat production were sold in the West/Southwest (48 thousand tons) and Mountain regions (17 thousand tons) of the country.²³

Comparisons of wheat production estimates with an estimated consumption standard of 150 kgs/person/ year suggest broadly similar patterns of marketable surplus by region. Only four

²³ The NRVA data are consistent with survey findings reported in Grace and Paine (2004) showing that most sample households had no or little marketed surpluses of wheat.

provinces, all located in northeast Afghanistan, have sizeable surpluses of production over consumption: Kunduz (542 thousand tons), Takhar (179 thousand tons), Baghlan (192 thousand tons) and Badakshan (72 thousand tons), (Annex Tables A4.2 and A4.3).²⁴

Regional differences in agro-ecological conditions, economic incentives for production, concentration of land ownership, and population densities largely account for the above differences in estimated marketed surplus. In addition, mountainous terrain, poor road infrastructure and the tenuous security situation, all contribute to high marketing costs and generally weak market links across various regions of Afghanistan. In fact, several regional markets for wheat appear to be better integrated with markets in bordering countries than with other markets in Afghanistan.

In broad terms, available evidence suggests that there are five wheat marketing regions of Afghanistan (Table 3.4 and Map 3.1). The northern region, with its major market in Mazar-e-Sharif, is surplus in wheat, supplying wheat to markets in the central region (in particular, Kabul) and the West Region (Herat). Significant amounts of wheat are imported from Kazakhstan via Uzbekistan and Mazar-e-Sharif (and in past years from Kazakhstan via Tajikistan and Kunduz²⁵) into the northern region. The central/east region, including Kabul and Jalalabad, is deficit in wheat, and is supplied both with imported wheat flour from Pakistan (via Peshawar) and the northern region of Afghanistan (via the Salang tunnel). The southern region is also a deficit region, with strong international links to the Pakistan wheat flour market via Quetta, Pakistan and the Spin Boldak/Chaman border to Kandahar. Given the high risks of transport between the Kabul and Kandahar markets, however, there has been little wheat trade between the southern and central/eastern markets.

Relatively little solid empirical information is available about markets in the western region, which includes Herat. Anecdotal evidence suggests there are links with domestic markets in the north (Mazar-e-Sharif) and the south (Kandahar). Imports from Iran (perhaps originating from Kazakhstan) may also supply this market. Finally, markets in the Central-West Highlands are perhaps the most isolated because of low population densities, and poor physical and institutional market infrastructure. Because of the high marketing costs and weak links to international markets, supply of wheat in this region is likely even more vulnerable to shocks than supply in other regions of Afghanistan.

²⁴ These estimates of total marketable surplus total to almost 1 million tons, about 300 thousand tons greater than the NRVA data on marketed quantities. This suggests that average consumption in the surplus districts may have exceeded 150 kgs/ person/ year and/or that NRVA data under-reports total marketed quantities.

²⁵ Neun and Fitzherbert (2003) and personal communications with Daniel Molla (WFP/Kabul) and Anthony Fitzherbert.

Table 3.4: Regional Wheat Markets in Afghanistan

Regional Market	Major Cities	Surplus/Deficit	Domestic Market Links	International Market Links
North	Mazar-e Sharif	Surplus	To West and Central	From Uzbekistan through Mazar
West	Herat	Deficit	From North and South	From Iran and Pakistan
Central/East	Kabul, Jalalabad	Deficit	From North	From Pakistan (Peshawar)
Central-West Highland	None	Deficit	Weak links	Little or no trade
South	Kandahar	Deficit	To West	From Pakistan (Quetta)

Map 3.1: Afghanistan: Regional Wheat Markets



Wheat Milling

Afghanistan has a severe shortage of wheat milling capacity. As of mid-2004, there were only eight medium- to large-scale industrial mills in the country (Annex Table A4.4). Five of these mills are publicly owned and located in the major cities of Kabul, Mazar-e-Sharif, Kandahar, Herat, and Pol-e-Khumri (Baghlan province). All five of these mills were built by the Soviet Union in the 1980s, but have suffered severe damage since then and only two (in Kabul and Mazar-e-Sharif) are operational in any form. The Kabul mill processes an average of 45 tons of second or third class wheat per day, and all of the output is sold to the Afghan national army. Baking facilities at the mill are leased out to a private firm periodically that manufactures sweetened breads and cake products. The Mazar facility provides services for the storage of grain, and periodically provides milling services. However, quantities milled are limited, and the mill is operated infrequently.

In addition to the five publicly owned mills, there are three private medium-sized flour mills located in Kabul and Mazar-e-Sharif. These mills have significantly less storage capacity (2 to 6 thousand tons) than the public mills did when built (40 to 60 thousand tons). Kabul Flour Mills has been in operation since early 2003. It procures grain in the north of the country through its buying agents in Kunduz, Mazar-e-sharif and other cities), but is operating at only about 30-50 percent of milling capacity.²⁶ The two privately owned mills in Mazar have a capacity of only 45 and 60 tons per day that are generally producing at capacity. All three private mills are owned by firms that also have operations in a number of other products.

Apart from these three private and five public mills, all other milling capacity in the country consists of small scale, zero extraction rate 'chakki' style mills. According to the July 2004 Mercy Corps survey of 61 mills in Kabul, Kunduz and Kandahar (Chabot, 2004), average mill capacity is between 1.6 and 2.4 tons per day. Mills in Kunduz (in the surplus northeast of the country) milled an average 13.7 tons/month (about 40 percent of capacity); mills in Kabul and Kandahar milled only about 8.0 tons/month (about 15 to 20 percent of capacity).

With only three medium-sized mills operational on a regular basis, industrial milling capacity in Afghanistan is only a small fraction of total wheat flour processing needs. Assuming all three private modern mills are operated 300 days per year and produce 305 tons of flour per day, total capacity is 91,500 tons per year, about 3 percent of national consumption. The capacity of Kabul Flour Mills (60,000 tons) represents approximately 13 percent of estimated consumption for the city of Kabul.²⁷ Actual quantity milled is less than half the capacity, about 5-6 percent of estimated consumption. Including the 137 registered chakki mills in Kabul and assuming 7.9 tons of grain milled per month (as reported in the Mercy Corps survey), total milling capacity in Kabul is about 73,000 tons, about 16 percent of estimated total annual consumption.²⁸ Thus, there appears to be substantial scope for investment in medium sized industrial milling facilities in Kabul, as well as the rest of the country.

²⁶ The mill is processing between 50-75 tons per day during the months of May through July, and 80-100 tons per day during the winter months of October-February.

²⁷ Annual wheat flour consumption for Kabul city is estimated at 450,000 tons -- 150 kgs/person x 3.0 million people.

²⁸ These estimates are consistent with results from the Mercy Corps trader survey showing 80 to 90 percent of wheat flour sold in Kabul is imported.

Production Shocks and Market Price Fluctuations

In spite of large fluctuations in domestic production caused by periodic droughts, domestic grain prices in Afghanistan have been remarkably stable. A major reason for this relative stability in prices is imported grain flows that add to total availability of grain. Although food aid has been a significant source of import supply, private sector imports appear to have been the major stabilizing factor in Afghanistan's markets.

The limited survey evidence on the private sector import trade suggests that it is highly competitive and very responsive to market forces in Afghanistan wheat markets. Informal interviews indicate that private traders/importers typically hold small stocks, and react quickly to perspective demand for wheat flour by increasing imports.²⁹

Comparisons of retail prices in Kabul with wholesale prices in Peshawar (the nearest major wheat market in Pakistan)³⁰ and Lahore (a major wholesale wheat market) also suggests that the price of private sector imports (the import parity price) was a major determinant of the price of wheat in Kabul from 2001 through mid-2003 (Figure 3.1). For example, in 2002, the average import parity price of wheat from Lahore was \$158/ton (\$138/ton plus an estimated \$20/ton transport and marketing margins), compared with an average retail price in Kabul \$152/ton.³¹ The correlation coefficient between this estimated import parity price and the Kabul retail price for January-December 2002 was 0.93,³² suggesting that market prices in Kabul were effectively determined by the cost of imported wheat and wheat flour from Pakistan.

Over a longer period (January 2002 through March 2004), the correlation coefficient of the ex: Lahore import parity price with the Kabul retail wheat price is only 0.47, however. Correlation coefficients between Kandahar and Lahore and between Jalalabad and Lahore³³ are somewhat higher, 0.88 and 0.66, respectively. Correlation coefficients of average monthly prices of wheat (expressed in US\$/ton) across most cities in Afghanistan suggest even lower degrees of market integration (Table 3.5). The only pair of domestic markets with a correlation coefficient greater than 0.6 is Mazar and Faisabad in the wheat surplus northern regions of Afghanistan.³⁴

²⁹ Neun and Fitzherbert (2003), p. 58.

³⁰ Transport time by road between Kabul and Peshawar is approximately 8-10 hours. Though it is generally unsafe for cars to travel this road after dark, truck traffic continues throughout the night.

³¹ A better measure of integration across markets would be comparisons of wholesale prices; unfortunately, no data on wholesale prices in Kabul exists. The marketing margin used here approximates transport costs, differences in quality between Pakistan wheat/flour and the average quality in Kabul markets, and the margin between wholesale and retail prices.

³² By comparison, correlation coefficients in the well-integrated North American wheat markets for US Soft Red Winter, US Hard Red Winter and Canadian wheat prices over the January 2002 through March 2004 ranged from 0.88 (US Soft Red Winter and Canadian Wheat) to 0.94 (U.S. Hard Red Winter and Canadian Wheat).

³³ Prices for Lahore are import parity prices calculated as the price in Lahore plus a fixed dollar marketing and transport margin to Kabul.

³⁴ Preliminary regressions of prices of wheat in various provincial markets and the price of wheat in Kabul of the form: $\Delta P_{\text{provincial}} = \beta_0 + \beta_1 \Delta P_{\text{Kabul}}$, produced statistically insignificant coefficients for β_1 , however.

Figure 3.1: Wheat and Wheat Flour Prices in Afghanistan, 2000-2004

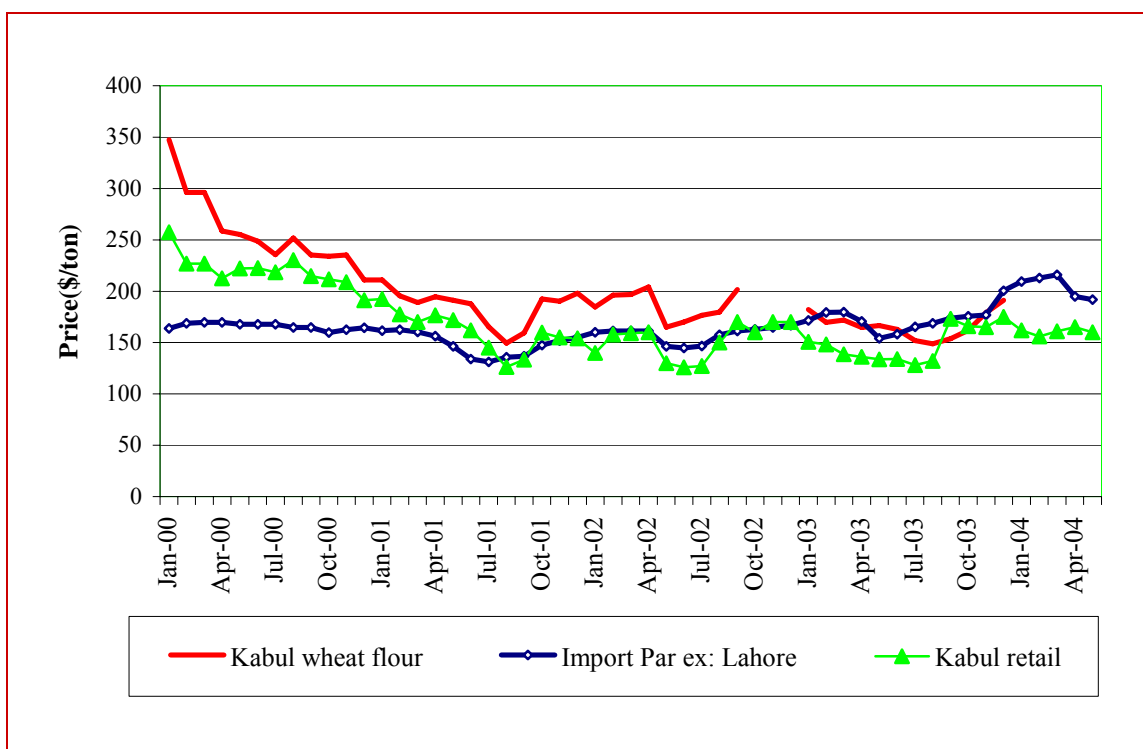


Table 3.5: Correlation Coefficients for Wheat Prices, January 2002 to March 2004

	Kabul	Kandahar	Jalalabad	Herat	Mazar	Faisabad	Lahore ^a
Kabul	1.00						
Kandahar	0.42	1.00					
Jalalabad	0.30	0.49	1.00				
Heart	0.34	0.29	-0.05	1.00			
Mazar	0.24	0.05	-0.30	0.51	1.00		
Faisabad	0.22	-0.13	-0.57	0.54	0.79	1.00	
Lahore^a	0.47	0.88	0.66	0.34	-0.02	-0.24	1.00

^a Data for Lahore, Pakistan are import parity prices calculated as the price in Lahore plus a marketing and transport margin to Kabul, estimated at \$20/ton.

Source: Calculated from price data from WFP/Kabul and the World Bank.

Several factors may account for these rather low correlations between wheat prices in Kabul, Kandahar and Jalalabad with estimated import parity prices in Pakistan. Because most of the trade in wheat is in the form of flour, not grain, changes in the markups between grain and flour in both Afghanistan and neighboring countries affect the correlation in wheat grain prices. Moreover, available data on wheat flour prices do not specify qualities of wheat flour; comparisons of imported and domestic flour prices are likewise problematic.³⁵ Finally, the margins between prices of imported and domestic flour are not constant, but change according to relative availability of the two types of flour in the market. The very low correlation coefficients between

³⁵ In Kabul markets in mid-2004, prices of Pakistan flour commanded about a 10 percent premium over Uzbek 1st class flour; in Mazar markets, domestic 1st class flour was priced at about a 10 percent premium over domestic 3rd class flour.

many pairs of domestic markets, however, most likely reflect lack of trade between these markets.

Nonetheless, the relative stability of domestic wheat prices (at prices approximating import parity prices) in the face of extremely large fluctuations in production suggests that private trade has played an important role in stabilizing prices and enhancing food security in Afghanistan, as it has in other countries (see Box 3.2).

Box 3.2: Price Stabilization, Trade and Food Security: The Bangladesh Experience

In an effort to stabilize domestic market prices and the availability of food, many countries have intervened heavily in food markets, buying and selling grain, and accumulating large national stocks as emergency reserves. For example, for most of the last forty years, India has relied on procurement of grain at fixed support prices, movement restrictions, limits on private stocks, large national food stocks, and subsidized sales of food through ration shops to stabilize prices. A policy of market development and trade liberalization is an alternative, potentially less-costly and more effective option, however, as evidenced by the experience of Bangladesh following massive floods in 1998.

In mid-1998, as major floods spread across much of Bangladesh and rice prices rose to import parity levels (the export price of rice in the exporting country plus transport and normal marketing costs), inducing massive inflows of rice by hundreds of small traders. Private sector rice imports, 2.42 million tons in this period according to official estimates, were 6.1 times larger than government rice distribution. During the 1998 calendar year alone, private sector imports, mainly from India, reached 2.26 million tons. Had the government of Bangladesh imported this grain itself, the average additional cost of the imported rice delivered to local delivery points would have been approximately 50 to 100 million dollars. And, if the government had subsidized this rice by selling it at the Open Market Sales price used for very limited government sales in urban centers, the total fiscal cost would have been 160 to 210 million dollars.

The liberalized trade policy also helped the Government of Bangladesh to achieve price stabilization without large government stocks. In 1988/89, at the time of another major flood that caused an 18.1 percent reduction in the monsoon season rice harvest, (relative to trend), public stocks averaged 1.167 million tons from August to November, (10.9 kilograms/person). These stocks combined with public sector imports enabled the government to use public distribution channels and stabilize markets and reach flood-affected households. Average public stocks ten years later in August-November 1998, however, were only half the per capita levels of ten years earlier (5.5 kilograms/person). Nonetheless, private sector imports rather than public distribution provided the main source of additional market supplies to compensate for the 2.04 million ton crop loss.

Other factors were also important in enabling Bangladesh to stabilize food supplies. The large expansion in the winter season *boro* rice and wheat harvests over more than two decades helped reduce the relative importance of the monsoon (*aman*) rice crop in total domestic production, and minimize the length of time between major domestic grain harvests. Moreover, large-scale import flows would not have been possible without development of private domestic markets through investment in market infrastructure (particularly, roads and bridges) and pro-market policies including no limits on private stocks or movement restrictions, sufficient access to foreign exchange, made possible in part through expansion of Bangladesh exports, and availability of grain in world markets.

Source: Dorosh (2001, 2004).

Food Aid

Food aid inflows also add to domestic supplies, but because their levels are determined by administrative procedures and not by market forces, they have the potential to reduce market prices below international border price levels. In this case, food aid reduces producer prices below the levels that would prevail in markets in the absence of food aid, reducing farmer incomes and incentives for production, both directly (through reduced market prices) and indirectly (through reduced public and private incentives for investment in agricultural technology).

However, there is no evidence of major disincentive effects of food aid on wheat markets up to the bumper wheat crop in 2003, and the continuance of private sector imports during that year suggests that marketing or milling constraints, rather than food aid were most responsible for localized decline in producer prices.

During 2001/02 and 2002/03, (major drought years), substantial private sector imports took place along with food aid distribution, and retail market prices for wheat in Kabul mirrored import parity prices. In spite of large amounts of food aid, there was no evidence of major price disincentive effects of food aid 2001/02 and 2002/03. Prices of wheat and wheat flour were at or near import parity levels in this period, and substantial private sector imports took place along with food aid distribution.

After the record wheat harvest in mid-2003, however, domestic wheat grain prices may have fallen below import parity levels; wheat prices in Kabul fell substantially below import parity. Retail wheat prices in Kabul averaged about \$165/ton from September 2003 to May 2004, while Pakistan import parity prices rose to about \$195/ton (18 percent higher) in the same period.³⁶ Afghanistan's imports of wheat flour from Pakistan continued (albeit at a slower pace than in earlier years), in part because higher income urban households demand imported wheat flour, which is of higher quality than domestic wheat flour. (The shortage of milling capacity in Afghanistan to produce higher quality wheat flour is also a factor.)

With domestic prices below import parity prices, food aid added approximately 300 thousand tons to wheat availability (equivalent to about 8 percent of total wheat consumption in 2003/04 using the "best estimate"). Depending on the price responsiveness of consumer wheat demand, this increase in supply may have reduced market prices by perhaps 4 to 8 percent, in comparison with a program of cash transfers of the same value to food aid recipients.³⁷ Under the NRVA- and FAO-based estimates of availability, the effects of food aid inflows range from 3 to 9 percent. While these adverse effects on food aid on market prices are relatively small, food aid inflows may also reduce public sector incentives to make investments in irrigation, research and extension that can raise domestic production and rural incomes (see Box 3.3).

³⁶ Pakistan's wheat prices in 2003/04 were higher than in 2002/03 largely because the Pakistan wheat harvest in mid-2003 (19.25 million tons) was affected by a drought and was 1.83 million tons less than the record 2000 harvest. After a failure to import wheat through public tenders, government stocks fell to extremely low levels prior to the 2004 wheat harvest, and the Government of Punjab placed movement restrictions on wheat after the harvest in 2004 to keep market prices low and to facilitate its own procurement.

³⁷ This calculation assumes an own-price elasticity of demand for wheat of between -0.5 and -1.0 . Alderman (1988) estimated own-price elasticities of demand for wheat in Pakistan in the mid-1980s of -0.96 for rural and -0.34 in urban areas.

Box 3.3: Food Aid and Incentives for Domestic Production

Maintaining food security at the national and household level is a major priority for most developing countries, both for the welfare of the poor as well as for political stability. In order to help assure food security, developing country governments have adopted various strategies including efforts to increase production (often with an explicit goal of food self-sufficiency), government intervention in markets, public distribution of food and maintenance of national food security stocks. Food aid, both for short-term emergency relief and program food aid that helps address medium-term food “deficits”, is often a major component of these food security strategies. However, if not well managed, food aid can reduce domestic prices and producer incomes, as well the incentives for public and private investment in food production.

Country experiences regarding food aid and domestic production have varied considerably. In South Asia, both India and Bangladesh have dramatically increased food production and reduced the role of food aid in national food supply and in programs to reduce food insecurity at the household level. In contrast, food aid has been a major share of total food supplies in Ethiopia for more than thirty years, and in spite of some gains in grain production since the mid-1990s, emergency food aid appeals are an almost annual occurrence.

Following drought-induced production shortfalls and a temporary cutoff of U.S. food aid due to a political dispute in the mid-1960s, India adopted a national food self-sufficiency policy to increase domestic food production and eliminate the need for food aid inflows. Beginning in the late 1960s India rapidly increased its domestic food production through substantial public investments in irrigation and agricultural technology, and maintenance of producer incentives through large-scale government interventions in grain markets. By the mid-1970s, the country had achieved its wheat and rice self-sufficiency objectives. Only in the mid-1990s did major market liberalizations in agriculture occur, however, and the government still plays a dominant role in food markets in major producing states (World Bank, 2004).

Bangladesh also rapidly increased its food production, using similar technologies to those adopted in India (expansion of irrigation and increased use of improved seeds and fertilizer), even as large-scale food aid inflows continued. Food aid inflows generally did not exceed the amount of wheat that would have been demanded in the absence of food aid and so producer prices were not adversely affected (Dorosh et. al., 2004). Bangladesh also adopted a more market-oriented approach than India with less government intervention, reaping its largest gains in production and food security after liberalizations of internal and external markets for food grain and agricultural inputs beginning in the late 1980s (Ahmed, Haggblade and Chowdhury, 2001; Ahmed, 2004).

Ethiopia’s gains in food production have been much more modest than those of India or Bangladesh, in part because the country has a much drier climate, with relatively far fewer opportunities for irrigation and multiple-cropping. War and insufficient investment in roads and market infrastructure have also limited the development of private markets, lessening market incentives for domestic production. Since 1994, economic reforms and increased adoption of improved seeds and fertilizer have enabled grain production to keep pace with population growth rate, but only after a dramatic decline in per capita grain production over the previous two decades (del Ninno, Dorosh and Subbarao, 2005).

Policy Implications

Because of the country’s mountainous terrain, poor road infrastructure and tenuous security situation, internal marketing costs are very high. As a result, regional markets for wheat are generally better integrated with markets in bordering countries than with other markets in Afghanistan. Only in years of good harvests are there significant flows of wheat between regions

of the country, in particular from the northern region of the country to markets in the central region (in particular, Kabul) and the West Region (Herat).

Development of efficient private markets is thus essential to translating food security at the national level (i.e., sufficient overall availability of food) to adequate availability at the local level. However, because of the country's mountainous terrain, poor road infrastructure and tenuous security situation, internal marketing costs are very high. Reducing these costs and increasing the efficiency of private markets will require **both investments in domestic market infrastructure and a favorable environment for private sector trade and investment.**

Well-functioning markets facilitate the flow of food commodities from surplus to deficit areas, potentially benefiting both producers and consumers. This trade can be facilitated by a policy of **free trade between and within provinces (no movement restrictions or taxes on domestic trade flows, and no limits on the location, quantity or prices of food purchases or sales).**

Private sector investment in storage and food processing (e.g., wheat milling) can be encouraged by placing no limits on privately held stocks or the size of milling or other food processing operations and minimizing licensing requirements and avoiding imposition of price controls (e.g., administratively set price ceilings on bread).

The experience of many countries indicates that public sector procurement, storage and distribution of food can involve large fiscal subsidies. **Minimizing direct government interventions in food markets will encourage private sector and investment.**

If the government does intervene in food markets, it is important to maintain private sector incentives for trade and storage through a transparent and consistent set of rules for government purchases and sales, and a sufficient margin between public sector procurement and sales prices that is in excess of normal private sector storage and processing costs.

IV. REDUCING POVERTY AND INCREASING HOUSEHOLD FOOD SECURITY³⁸

The ability to access food by different households is determined by a number of factors, including purchasing power, the local availability of food, and for individuals within the household, by socio-cultural relations. Own-production of food, wages (either in cash or in kind) from employment, or profits from own-enterprises are major sources of income. Household access to food can also be enhanced by government and NGO programs that supplement cash or food resources, as well as through private gifts, informal social support networks or borrowing (formal or informal). But even where household access to food is sufficient, utilization of food and nutritional outcomes may be inadequate, either because actual food intake (quantity, quality and diversity) is insufficient or because various health factors (water-borne diseases) inhibit the bodies' ability to utilize food.

As discussed in this paper, total availability of food, particularly cereals, is not the only, or necessarily the most significant constraint on food consumption for the country as a whole. The NRVA data corroborate this: average per capita availability is about 2800 calories/day (Table 4.1), significantly above the 2100 calories per person estimated minimum daily requirement. Thus, increasing the ability of households to purchase more food rather than increasing availability of food appears to be the main pathway for reducing chronic food insecurity in Afghanistan.

Table 4.1: Distribution of Calories across Poverty Groups, Rural Afghanistan 2003

	Calories per Person per Day	Distribution of Calories (%)	Cost of purchasing calories Afs/p.a.	Distribution of food expenditure (%)
Quintiles				
Q1- Poorest 20%	1708	12	2292	9
Q2	2270	16	3580	13
Q3	2650	19	4762	18
Q4	3106	22	6237	23
Q5 - Top 20%	4263	31	10151	38
Overall	2800	100	5403	100

Source: NRVA 2003, World Bank 2005.

Rural Poverty

In Afghanistan, widespread poverty translates into chronic household food insecurity for millions of people who struggle to acquire sufficient food on a regular basis. Data from the NRVA suggest that 48 percent of the rural population in the sample of 11,200 rural households had food consumption expenditure (in the summer of 2003) that fell below the consumption poverty line, that is the cost of purchasing 2100 calories/day of the typical (to rural Afghanistan) basket of food items among the poorest households.³⁹ Because of variation in diets and sharing of meals, around

³⁸ This chapter is largely based on World Bank (2005) *Afghanistan Poverty, Vulnerability, and Social Protection: An Initial Assessment*.

³⁹ An individual is classified as poor if his annual total food-consumption per capita is below the poverty line, defined as the annual cost of consuming 2100 calories/day of the typical basket of food items among the poorest. For further explanation of the methodology used to calculate food-consumption poverty, see World Bank (2005), Appendix 2.

22 percent of the population are found to actually be consuming less than 2100 calories/day. Along both dimensions there appear to be variation within the country (Table 4.2).

Table 4.2: Rural Poverty by Region

	Percent of sample population	Percent of people falling below the per capita food expenditure threshold	Poverty severity (P2)*	Percent of people consuming less than 2100 cal/day
Rural Afghanistan	100	48	7	22
By Region				
North-east	11	33	5	13
South-east	12	39	4	15
Central	15	43	5	24
South	19	42	4	24
East	14	47	4	16
West	10	62	11	25
North	16	66	12	26
West-central	3	71	17	37

* A larger number suggest more “deep” poverty.

Source: NRVA 2003

When asked about their ability to meet their food needs over the last 12 months prior to the survey (summer of 2003), about a third of the rural sample of households claimed they “usually” had problems meeting those needs, while another third “sometimes” had food security problems. As to be expected, poor households were more likely to have problems meeting food requirements compared to the non-poor or better off households.

The factors underlying rural poverty in Afghanistan are complex, including insufficient assets (physical and financial), insecurity, recurrent droughts, poor infrastructure, low levels of education and skills, and inadequate public services. Access to land, especially irrigated land, is one important determinant of incomes and food consumption. Rural non-farm households on average consumed only 2,300 calories/person/day, 17 percent less than the national average (Table 4.3).

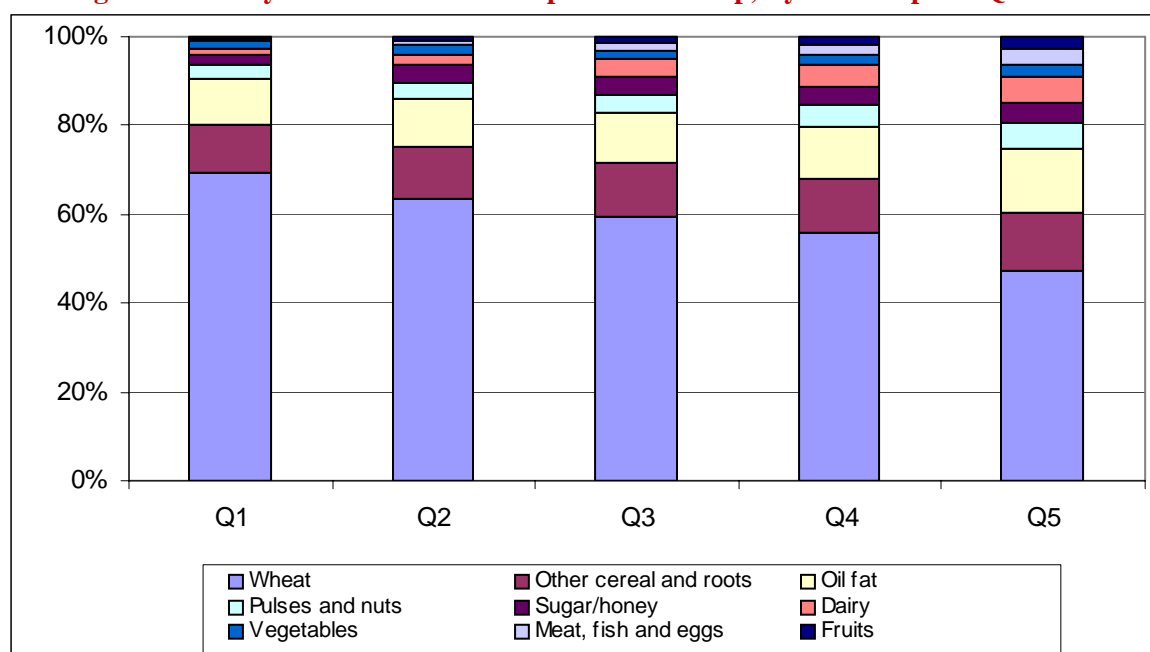
Table 4.3: Afghanistan: Poverty and Food Consumption by Rural Household Groups, 2003

	Households (mns)	% Total population	Poor HHs (mns)	Poor HHs (as % of HH group)	Poor HHs (% of rural poor)	Annual food expends/HH (000 Afgh)	Average calories per capita	Per capita wheat cons. (kg)
Farmers (cultivators)	1.84	85.8	0.87	47.4%	79.5	41.2	2,921	164.5
Large Land Owners	0.21	10.0	0.07	31.6%	6.0	54.3	3,481	175.0
Small Land Owners	1.46	68.1	0.69	47.3%	62.8	40.7	2,876	164.4
Tenants	0.18	7.7	0.12	66.8%	10.7	29.6	2,586	151.4
Landless w/ Livestock	0.22	9.5	0.14	63.1%	12.6	31.0	2,555	153.2
Rural Non-Farm	0.11	4.6	0.09	80.0%	7.9	24.2	2,311	147.1
Total	2.17	100	1.10	48	100	39.3	2,800	162.6

Source: NRVA 2003, World Bank 2005. Authors’ calculations.

Households in rural Afghanistan are heavily dependent on wheat as a source of calories. Typically 60 percent of calories derive from wheat, with another 10 percent from other cereals and tubers (NRVA sample). When the data are analyzed by group, there is greater dietary diversity among the upper consumption quintiles, while poor households are less likely to meet needs for dietary diversity. In particular, more than 75 percent of the daily calories for the lowest quintile are derived from cereals and roots compared with about half for the highest quintile (Figure 4.1).

Figure 4.1: Daily Caloric Distribution per Food Group, By Consumption Quintile



Source: NRVA 2003.

Urban Poverty and Food Security

The current urban population of Afghanistan is estimated to be around 6.4 million, which constitutes about 30 percent of the total population⁴⁰. Owing to the influx of returning refugees in 2002 and thereafter, the population of Kabul alone has increased from 1.7 million in 2000 to over 2.5 million (possibly over 3 million⁴¹) in 2003.⁴² Little quantitative data is currently available on urban consumption patterns and poverty.

In households surveyed recently in Kabul (ACF, 2004), for some 53 percent food clearly continues to be a primary concern (ranking third after income insecurity and tenure insecurity). When asked to give the main reasons for taking loans, food security was cited as the primary purpose, (followed by health expenditure). Household interviews confirmed that decreasing consumption of food (particularly eggs and meat) is a common phenomenon, as is the purchase of food on credit. Kitchen gardens provide an important component of food availability for many households, but tend to be less prevalent for poorer groups for whom overcrowded residential

⁴⁰ TISA (2004) *Securing Afghanistan's Future*.

⁴¹ Central Statistical Office currently estimates 2,799,300.

⁴² TISA (2004) *Technical Annex Urban Development*.

areas do not allow for such opportunities.⁴³ An assessment of households in poorer districts of Kabul found that 13 percent owned livestock to supplement their diet. However, for many households in these areas a typical meal was reported to consist only of bread and tea. Eighty-five percent of women reported eating fruit less than once a week, 49 percent less than once a month. Ninety-seven percent respondents consume dairy products less than once a month. The daily expenditure on food for 62 percent families is between \$1–2 /day, and for 36 percent families, less than \$1 /day.⁴⁴

Infant Mortality and Malnutrition

Afghanistan has some of the worst indicators for child health and development anywhere in the world. The infant mortality rate in Afghanistan is 165 per 1000 live births, with one in four children dying before they reach their fifth birthday⁴⁵ (around 300,000 annually). Around half of Afghan children suffer from chronic malnutrition (stunting). One of the key contributing factors to this crisis is the lack of access to safe drinking water for 87 percent of the population and the absence of adequate sanitation facilities for 99 percent of the population.

The unavailability of detailed nationwide anthropometric information hinders an in depth and systematic analysis of malnutrition. Most malnutrition occurs during pregnancy and the first 2 years of life. Typically, there are a number of factors associated with malnutrition: (i) household level access to food; (ii) access to health services and facilities; and (iii) home care. All three factors are present in rural Afghanistan. Moreover, imbalance in the diet, particularly among poor households with inadequate caloric intake, often implies inadequate intake of essential micro-nutrients as well, which can lead to serious household problems.

Results of the anthropometric surveys undertaken in Kabul from 1995 – 2003 (Annex Table A4.5) show high levels of chronic malnutrition (stunting) for children under five and significant seasonal variations in acute malnutrition (wasting). The results point to a marked improvement in nutritional status since 2002, although the absolute figures remain high. The fact that acute malnutrition peaks occurred during the summer of 2002 may be correlated to the marked increase in the incidence of diarrheal disease at this time of year. Surveys in Badghis Province⁴⁶ suggests that the incidence of chronic malnutrition is similar to that in Kabul, while the incidence of acute malnutrition may be higher in Kabul than that among rural households. The nationwide 2003 Multiple Indicator Cluster Survey⁴⁷ data show that, as a result of over-crowded unsanitary conditions, infant mortality rates are frequently higher among sections of the urban poor than for their rural counterparts.⁴⁸

Reducing Poverty

Sustained, equitable economic growth is the essential path for poverty reduction in Afghanistan. In the absence of growth, and the conditions necessary to facilitate it, the scope for poverty reduction is severely constrained. Sustained over some years, economic growth can increase opportunities for most Afghan people. Its impact will depend on how well equipped poor people are to participate in growth and to what extent growth helps the poor to build their assets –

⁴³ ACF (2004).

⁴⁴ CARITAS Germany (2003).

⁴⁵ Source, UNICEF, 2003.

⁴⁶ UNICEF / MoPH (2003.) Global chronic malnutrition 57.5% and global acute malnutrition 6.5%.

⁴⁷ UNICEF / CSO (2003).

⁴⁸ World Resources Institute (1997) *The Urban Environment*.

physical, financial, human and social. Having the ability to accumulate physical capital such as (irrigated) land, livestock and small businesses, having access to (micro) finance and business support services, as well as finding employment opportunities will be fundamental to the success of any poverty reduction program. Likewise, improvements in the welfare of poor people will require human capital accumulation – education, skills and good health – and the provision of infrastructure.

Existing Social Protection Policies

Social Protection is at the heart of poverty reduction, both providing people with the means to escape chronic poverty as well as cushion against income loss when shocks – such as drought – occur. Government interventions to improve food security are one component of its Livelihoods and Social Protection Program. This program has been developed to address the needs of poor and vulnerable people and ensure both their direct (self-reliance) and indirect (targeted public transfers) inclusion in national development. In the 2003/04 (1382) development budget, the Government sought to initiate a strategic shift beyond purely humanitarian relief to a more integrated and efficient programmatic approach able to provide sustained support to poor people so that they are better able to protect their assets and rebuild their livelihoods (see Annex Table A4.6).

Four key ministries share cross-cutting mandates especially related to livelihood promotion and social protection. This is to be achieved both through sharpening the pro-poor focus of all sector programs, as well as through investment in additional targeted programs for vulnerable groups. The total investment budget for the Livelihoods and Social Protection Public Investment Program in 2003/04 (SY 1382) was US\$233.5 million, about 13 percent of the total National Development Budget of around US\$1.8 billion. In addition to the LSP PIP, a food aid program (300,000 tons of food) accounted for about US\$150 million.

The LSP consists of six sub-programs, each with its own set of priority interventions, including many not directly implemented by the Government (Annex Table A4.7).⁴⁹ Two of these programs, the *National Emergency Employment Program* (NEEP) and the *National Solidarity Program* (NSP) are particularly important sources of public employment and resource transfer. NEEP is a labor-based approach to investments in rural infrastructure, which in FY2003/04 (Afghan year 1382), generated 8 million labour days of employment for the construction of rural infrastructure, including 5000 km of rural roads using mainly cash payments (see Annex Box A4.1.) The NSP provides block grants to villages, empowering communities to manage their own resources (see Annex Box A4.2.). The other programs are:

- the *Microfinance Support Facility of Afghanistan* which promotes the establishment of sustainable financial service delivery to the rural poor;
- the *Business Development Services Program*, which provides sustainable support to enterprises;
- the *National Water Supply and Sanitation Program*, designed to enhance the health of rural communities; and

⁴⁹ This reflects the Government's commitment to focus its existing resources on policy development rather than involvement in direct service delivery, through entering into purchaser – provider relationships with relevant agencies.

- the *National Disaster Risk Management Program*, emergency response and interventions and institutional strengthening for risk management and disaster mitigation.

Food Aid Supported Programs

All of the programs in the Livelihoods and Social Protection area are designed to raise real incomes and improve the welfare of the poor. As such, they can potentially contribute to household food security by increasing access to food for poor households. None of these programs involve direct transfers of food, however. Alongside these programs is an array of programs utilizing food aid resources.

In the absence of a functioning public administration and with frequent droughts and protracted political instability for several decades, food aid interventions in Afghanistan have played a crucial role in saving lives, protecting welfare and preserving capital assets. In recent years, however, with the re-emergence of a state presence, development of national and sub-national markets, improvement of climatic conditions following a three-year drought, and improved security in some parts of the country, the need for humanitarian food aid appears to be diminishing. Nonetheless, given weather-related fluctuations in production, and chronic food insecurity at the household related to inadequate access to food, food aid remains a potentially important instrument if properly targeted and utilized.

Food programming within Afghanistan currently takes place within the framework of the Protracted Relief and Recovery Operation, implemented on behalf of the Government by WFP. The stated objective of the two-year PRRO that started on April 1, 2003, is to contribute to the protection and re-establishment of livelihoods and household food security by providing assistance to over 9.2 million beneficiaries over a two-year period. The total food requirements are 618,989 tons of commodities, valued at US\$337.5 million. The main focus of the PRRO is on recovery activities such as food for work (FFW), food for education (FFE) and food for training (FFT). Relief activities constitute around one third of assistance and include support to returning refugees, internally displaced persons, the acutely malnourished, vulnerable households and social institutions. A mid-term evaluation of existing food aid programs undertaken during the second quarter of 2004 suggested cutting back several programs in accordance with medium-term government strategy to reduce levels of food aid. Small programs involving Institutional Feeding and Orphanages, TB Patient Feeding, and Urban Bakeries may be significantly reduced or eliminated, with an increased focus placed on programs with a greater development or training component, and where the benefits of food aid justify the costs of food aid handling and administration (see Annex 2).

Targeting of Food and Other Safety Net Interventions

Given the scarcity of financial and administrative resources in Afghanistan, it is important that policies and programs involving direct transfers are efficiently and effectively targeted. Data from the NRVA suggest that food for work (FFW) and cash for work (CFW) programs designed with the dual objectives of creating rural infrastructure and providing short-term employment do not efficiently target poor households. Relief food aid, administered mainly by the World Food Program, is relatively more efficiently targeted, but has much smaller coverage.

Box 4.1: Background to WFP PRRO in Afghanistan

- With costs estimated at US\$370 million⁵⁰ at the time of launching, the two-year program (launched March 2003) was WFP's largest single country PRRO. This operation was designed to assist over nine million vulnerable people in rural and urban areas including returning refugees and Internally Displaced People, largely through FFW, FFT, school feeding programmes and returnee packages.
- The overall goal of the operation is to contribute to re-establish and stabilize livelihoods and household food security in the context of Afghanistan's National Development Framework.
- The current PRRO only began implementation in April 2003, but some of these activities have implemented under the EMOPs since in January 2000, or since the EMOPs were introduced that same year.
- The PRRO is implemented by close to 180 non governmental implementing partners, of which 140 are reported to be national NGOs.

FFW is the most widespread program, accounting for over one-third of food aid. More than a third of rural households in the NRVA sample participated in the program, compared to almost 20 percent and 13 percent participation in CFW and Relief Food Assistance, respectively. Three percent of rural households participated in other public and private programs, not identified in the survey.

Table 4.4: Safety Net Program Participation, Rural Afghanistan 2003

	Food for work	Cash for work	Relief food	Welfare Neutral distribution
The extreme poor (poorest 20 percent)	24	22	33	20
The moderately poor (middle 60 percent)	60	61	53	60
The better off (top 20 percent)	16	17	14	20
Total	100	100	100	100
Concentration coefficient	-0.08	-0.05	-0.18	0

Sources: NRVA 2003; and World Bank 2005.

Relief Food Aid is better targeted to the poorest 20 percent of households than are the other two programs: one-third of relief food aid recipients are among the poorest rural households. The shares of participants in FFW and CFW, however, are essentially the same for all consumption quintiles, with more than 15 percent of participants in each program coming from the richest 20 percent of households.⁵¹ The concentration coefficient, which captures whether program participation is progressive or regressive, indicates that FFW and CFW are welfare neutral; only the RFA programs are significantly progressive.⁵²

⁵⁰ Food commodity value estimated to be around 46% of total costs (WFP, 2003).

⁵¹ While it is possible that they were less well off at the time of participating in the program (the data refer to the year preceding the survey) and as such were more eligible beneficiaries, this seems quite unlikely.

⁵² The concentration coefficient ranges from +1 to -1, with positive values indicating a regressive distribution, negative values a progressive distribution, and a value of zero a perfectly equitable distribution. The formula for calculating the concentration coefficient is:

$$\left[\frac{2}{N} \sum_{i=1}^N ix_i \right] - \left(1 + \frac{1}{N} \right)$$

All of these programs have limited coverage. The exclusion error (the percentage of the eligible population that is not participating in the program) is large by all targeting eligibility criteria considered here: (i) food consumption poverty; (ii) food intake gap (food insecurity); (iii) whether the households had unemployed household members; and (iv) if the household suffered employment shocks. For example, for FFW, only 37 percent of poor households participate in the program; 63 percent of the poor are excluded.

There are significant errors of inclusion (non eligible households that participate in the programs), as well. In FFW programs, 45 percent of participants are non-poor households. Similarly, using “food intake gap” (e.g., households who consume less than 2100 calories per capita), as the criteria for program eligibility, 85 percent of the households that are food insecure do not participate in the RFA program, while more than 75 percent of the households that would not be eligible as they are not “food insecure” do receive food aid.

**Table 4:5: Program Targeting Indicators under Various Eligibility Criteria
(%), Rural Afghanistan**

Assumed targeting criteria:	Inclusion error: % of non-eligible group receiving^a	Exclusion error: % of eligible group not receiving^b
<i>Poverty</i>		
Food for work	45	63
Cash for work	47	79
Relief food	38	83
<i>Food intake gap</i>		
Food for work	81	70
Cash for work	79	85
Relief food	77	85
<i>Unemployed in household</i>		
Food for work	88	67
Cash for work	89	75
Relief food	85	83
<i>Employment shock in household</i>		
Food for work	94	60
Cash for work	95	80
Relief food	92	80

^a Percentage of non-eligible group participating in program as a share of total program participants.

^b Percentage of eligible group not participating in program as a share of the total eligible population.

Source: NRVA 2003; World Bank (2005).

Further evaluation⁵³ is imperative in order to improve some of the targeting and selection criteria that may exist in these programs, and to help restructure and redesign some of the objectives and goals of the LSP PIP. Nonetheless, this initial analysis suggests that, given the high cost of

where N is the total number of groupings of the welfare variable used (e.g., 5 food consumption quintiles) and x_i is the coverage rates among group i.

⁵³ To fully evaluate these programs, additional information not collected in the NRVA is needed, especially data on the level of transfers to households. The role of social support networks in the highly heterogeneous socio-cultural contexts of Afghanistan should also be investigated.

public sector food aid programs (average unit cost of cereals of \$332/ton⁵⁴), cash employment programs or income transfers are potentially more efficient. Households that receive these wages or cash transfers can then purchase their food in local markets.

Thus, in order to maximize the efficiency of resource use and minimize the risk of disincentives for domestic production and market development, food aid use should be restricted to situations where the comparative advantage over cash transfers is clear, i.e., where:

- availability of food in local markets is a constraint on food security;
- the commodity distributed is an inferior good (i.e., a good for which quantity consumed falls as household incomes rise); and / or
- the food aid commodity can be fortified, so that it carries additional nutritional benefits that are not easily available to target households in their normal diets.

This applies to relief programs, as well, though it is crucial to distinguish areas where markets are likely to supply demand for food spurred by cash-based programs and areas where markets are poorly developed. Only in the latter case are food-in-kind programs likely to be more efficient than cash-based programs (See Annex 3).

In general, these conditions are not met for wheat and wheat flour under current food aid programs. Thus, where food markets are functioning well, cash-based programs are a more efficient means of enhancing food security of the poor than are food-based programs. In particular, the National Emergency Employment Programme (NEEP), the National Solidarity Programme (NSP) and other national cash-based interventions are expected to provide employment to nearly four million people in 2004/05. Other programs such as the National Vulnerability Programme have the potential to increase household food security through raising incomes of the poor, and micro-finance programs offer promise for consumption smoothing and risk management.

⁵⁴ This figure includes estimates of all shipping and handling costs for cereals; it does not include personnel or material costs of implementing programs. The figure cited above for cost of cereals delivered (\$332/ton) assumes that shipping and handling costs are proportional to commodity values; assuming shipping and handling costs are proportional to commodity weights raises the estimated cost of cereals delivered to \$421/ton (see Annex Tables A4.8 and A4.9). Note that much of the food aid is delivered to rural areas, which involves higher costs than grain delivered to urban markets.

V. CONCLUSIONS AND POLICY IMPLICATIONS

After decades of war, political upheaval, and natural calamities (including droughts), Afghanistan faces numerous challenges in reducing poverty and increasing food security. Productivity of agriculture, particularly food grains remains low, production is highly variable and susceptible to drought, and private markets face high transaction costs due to damaged or non-existent market infrastructure. Moreover, poverty and malnutrition remain widespread. According to the National Rural Vulnerability Assessment (NRVA) in 2003, about half of the rural population had food expenditures less than the amount required to purchase adequate calories⁵⁵ and about 20 percent of households consumed less than 2100 calories/person/day.

Achieving food security in Afghanistan requires policies and programs that address the three major aspects of food security,

- Availability of food (from domestic production or imports) at the national and local levels,
- Access to food by households (which is largely determined by their purchasing power and by public and private transfers), and
- Nutritional aspects, (including consumer choice in consuming food, diversity of diets, and health factors that influence absorption of food by the body).

Inclusion of all factors influencing food availability, access and nutrition, would make the scope of food policy as wide as the scope of overall development strategy. A food policy framework is nonetheless needed to help guarantee consistency across a range of sectoral policies that impact on national and household food security. This food policy note focuses on policies related directly to production, processing and marketing, and consumption of food, especially of wheat, the major food staple of Afghanistan.

The major findings of the report can be summarized as follows:

- **Food security does not necessarily require national self-sufficiency in wheat** or other food staples, as long as the country has access to international markets. Rather, **diversification into legal high-value crops and livestock products** may be the most effective means of increasing food security, through raising the incomes and purchasing power of the rural poor.
- In spite of very difficult conditions, wheat markets in Afghanistan have performed fairly well and private sector international trade has helped to stabilize supply and prices. Therefore **further developing wheat markets and facilitating private sector trade is called for and will enhance food security**.
- At the household level, food insecurity in Afghanistan is largely caused by inadequate access to food resulting from low household incomes. For most of Afghanistan, **where availability of food is not a constraint, policies to promote growth in rural incomes are the most efficient means of enhancing food security** of the poor.
- In the short run, food aid should be targeted to poor households in parts of the country where markets are failing; even here, however, close attention should be paid to producer and trader incentives.

⁵⁵ The food expenditure cutoff used was Af 4621/year (\$94/year), equal to the cost of purchasing 2100 calories/day of the typical basket of food items consumed by the poorest 40 percent of rural households in Afghanistan.

- **Development of both private and public capacity** for data collection and analysis is a high priority for effective formulation and implementation of food policies.

Food Production

Food production is central to food security in Afghanistan because most of the food consumed in Afghanistan derives from domestic production, and because production of both crops and livestock is a major source of rural incomes.

Production systems vary tremendously across Afghanistan, and are influenced by both agro-ecological factors (e.g., elevation, soil type, rainfall, and availability of irrigation and socio-economic factors (e.g., market proximity and infrastructure – roads, electricity, communications etc., security, level of incomes). Due to mountainous terrain in much of the country and an arid to semi-arid climate, only about 14 percent of total area is cultivated with crops. Of this agricultural land, about 40 percent is irrigated.

Availability of water is a limiting factor on agricultural production in most years. Wheat production has varied considerably in recent years because of both drought and deterioration in irrigation infrastructure. After severe droughts in 2000 and 2001, adequate rainfall and snow melt in late 2002 permitted a large expansion in area sown in November-December for the wheat crop harvested in April-May of 2003, officially estimated at 4.36 million tons (MAAH/FAO). There remains considerable uncertainty regarding wheat production estimates, however, and estimated production in 2004 is only 2.29 million tons. Similarly, livestock population and production (mainly sheep and goats, cattle and poultry) has been heavily influenced by drought, as well as war.

Achieving substantial increases in agricultural and livestock production would require:

- **Investments in irrigation rehabilitation and irrigation management reforms** (establishment of a river basin approach and support for local management of water resources through water users associations) can help bring more area under cultivation, reduce the effects of drought, and enhance yields.
- **Investments in agricultural research and extension**, including adaptation of existing plant varieties for local conditions, reforms in extension services to make them more responsive to farmers, and legalization of contract farming and the private sector seed industry can lead to significant increases in agricultural productivity.
- **Maintaining adequate incentives for efficient domestic production** through policies and infrastructure investments that promote development of competitive agricultural markets and avoid price disincentive effects of subsidized imports (food aid or commercial sales).

Food security does not necessarily require national self-sufficiency in wheat or other food staples, however. As long as the country has sufficient purchasing power to acquire wheat and other food on international markets, and market flows are not blocked, commercial trade can ensure adequate supply of food at the national level. Similarly, as long as total household incomes are sufficient to purchase available food in local markets, these households need not be self-sufficient in food, either. **Indeed, diversification into legal high-value crops and livestock products is a promising strategy for raising employment and incomes of the rural poor, increasing household food security, and reducing poppy cultivation in Afghanistan.**

Domestic and International Markets

Food markets play a crucial role in food security, linking domestic producers and international suppliers to consumers, including both rural non-farm and farm households (only about one fourth of all rural households are self-sufficient in wheat). Available evidence suggests that these markets have performed fairly well in Afghanistan under very difficult conditions of war, internal conflict and disruption of infrastructure. Nonetheless, transport and other marketing costs remain high, and **further development of efficient private markets is thus essential to translating food security at the national level (i.e., sufficient overall availability of food) to adequate availability at the local level.**

Private sector imports and food aid can add to food security through increasing overall supply (availability) of food, especially in the winter months. These imports can also improve access to food for households by containing market price increases.

Survey evidence and analysis of market prices suggest that since 2001 private sector imports (mainly originating from Pakistan and Kazakhstan) have involved substantial numbers of traders that respond quickly to shortages in domestic market supplies that would otherwise put upwards pressure on price. In this way, **private sector imports have helped to stabilize both market supplies and market prices in major cities in Afghanistan.**

Food aid inflows also add to domestic supplies, but because their levels are determined by administrative procedures and not by market forces, they have the potential to reduce market prices below international border price levels. Thus, food aid can reduce producer prices below the levels that would prevail in markets in the absence of food aid, reducing farmer incomes and incentives for production, but potentially benefiting consumers. **Market price analysis and the significant scale of commercial wheat and wheat from inputs suggest that food aid inflows to date have not had significant disincentive effects on market prices in Afghanistan.** Future flows, however, could lead to disincentive effects if not carefully managed, and as discussed below, the high costs of food aid suggest that where the option to switch to cash-based interventions exist, this should be the preferred direction.

The experience of many countries indicates that efforts to stabilize food supply and prices through public sector procurement, storage and distribution of food can involve large fiscal subsidies. **Minimizing government direct interventions in food markets will encourage private sector investment, and further development of efficient private food markets.** More specifically, government policies can promote efficient markets by:

- **Maintaining incentives for private sector imports through a policy of free trade** (no import licenses required apart from traders' registrations and zero or minimal import tariffs and taxes).
- **Maintaining free trade between and within provinces** (no movement restrictions or taxes on domestic trade flows, and no limits on the location, quantity or prices of food purchases or sales)
- **Promotion of private sector investment in storage and food processing (e.g., wheat milling)** by improving the private sector investment climate and by **avoiding restrictions on privately held stocks** or the size of milling or other food processing operations.
- **Minimizing licensing requirements and avoiding imposition of price controls** (e.g., administratively set price ceilings on bread).

Given scarce public sector resources and the overall effectiveness of private international trade flows to supply markets and help stabilize prices, **there appears to be little case for costly, large-scale national stocks** at this time. Before any large-scale investments in public storage are made, detailed studies of the likelihood of production and trade disruptions, and the benefits and costs of public stocks should be undertaken.

Food Consumption, Poverty and Food Aid

Because private sector wheat markets have functioned well in most of Afghanistan in recent years, food insecurity at the household level is largely a function of income poverty. To address this wide-spread and chronic poverty, rapid economic growth is required, combined with well-targeted programs to assist the most vulnerable households in the short run.

Targeted programs do not necessarily need to involve food transfers or food aid, however, which typically entail substantially higher costs. (Average unit costs of cereals - mainly wheat - delivered under the WFP Protracted Relief and Recovery Operations was \$332/ton⁵⁶, compared with an average retail market price of wheat flour of \$207/ton in six major Afghan cities⁵⁷ in 2003). Alternatives to food-based safety net programs include the National Emergency Employment Programme (NEEP), the National Solidarity Programme (NSP) and other national cash-based interventions that are expected to provide support to nearly four million people in 2004/05. Wherever possible, these should be preferred to food aid.

Where food aid is the only possible intervention, and food aid imports are additional resources for the Afghanistan government (i.e., in the absence of food aid, equivalent monetary resources would not be provided by donors), the use of food aid should be restricted to situations where the comparative advantage over cash is clear. This will help to maximize the efficiency of resource use and minimize the risk of disincentives for domestic production and market development. These situations occur where:

- availability of food in local markets is a constraint on food security;
- the commodity distributed is an inferior good (i.e., a good for which quantity consumed falls as household incomes rise);
- the food aid commodity can be fortified, so that it carries additional nutritional benefits that are not easily available to target households in their normal diets; and
- food aid can help create physical assets and support human capital accumulation.

Increases in access to food will not necessarily translate into major improvements in **nutritional outcomes** for poor individuals, particularly for the most vulnerable – pregnant and lactating women and young children. Here, there is also an important role for nutrition and health education, improvements in sanitation and quality of water, primary health care and other measures that promote absorption of nutrients and general health. Much international experience shows that increased educational status of women contributes to improved nutritional status of their children. Benefits and costs of programs involving fortification of foods should be assessed

⁵⁶ This figure includes estimates of all shipping and handling costs for cereals; it does not include personnel or material costs of implementing programs, and assumes shipping and handling costs are proportional to the value of the commodity (See Annex Tables A4.8 and A4.9). Note that much of the food aid is delivered to rural areas, which involves higher costs than grain delivered to urban markets.

⁵⁷ Kabul, Faizabad, Herat, Jalalabad, Kandahar, and Mazar-e-Sharif; WFP price data.

in comparison with benefits and costs of measures addressing the major factors affecting nutritional outcomes listed above.

Food Policy Coordination

The broad food policy framework outlined above, and summarized in Table 5.1, can provide a basic framework for policies and programs to enhance food security in Afghanistan. This framework must have in-built flexibility to adapt to changes in the food system, at both domestic and global levels and in response to ongoing participatory consultations with key stakeholders.

Moreover, effectively formulation and implementation of specific food policies will require the establishment of a robust and nationwide information system to forecast and monitor key indicators (e.g., market price stability, domestic food production, household purchasing power, commercial food imports, international trade flows, nutritional status, etc.) together with the development of both private and public analytical capacities. This analytical capacity and an information system to forecast and measure domestic food production, and to monitor food market prices and international trade flows are crucial to developing early warning capabilities and effective targeting procedures.

Finally, a high-level food policy framework committee may be formed consisting of representatives of the Ministries of Food and Agriculture, Commerce, Rural Rehabilitation and Development, and Social Affairs, together with responsible bodies for Disaster Management and National Statistics. The core economic ministries (Ministry of Economic Development and Ministry of Finance) might also be included. Such a committee can help Afghanistan to continue and refine its broadly successful current policy framework and to avoid policy mistakes in responding to an evolving food security environment.

Table 5.1: The Afghanistan Food System: Policy and Program Priorities

	Production	Markets (Local, national, regional and global)	Consumption /Social Protection
Lead ministry	Ministry of Food and Agriculture	Ministry of Commerce (MoC)	Ministry for Rural Rehabilitation and Development (MRRD)
Key Investment Programs	<p>Natural Resource Management Public Investment Program (NRM PIP)</p> <p><i>Priority Programs:</i> National Agriculture Program (NAP) National Irrigation and Power Program (NIPP)</p>	<p>Trade and Investment and Private Sector Public Investment Program (TIPS PIP)</p> <p><i>Priority Programs:</i> National Private Sector Program (NPSP) National Skills Development and Market Linkage Program (NSDMLP)</p>	<p>Livelihoods and Social Protection PIP Health and Nutrition PIP; Education PIP</p> <p><i>Priority Programs:</i> National Vulnerability Program (NVP) National Solidarity Program (NSP) National Emergency Employment Program (NEEP)</p>
Food System Objective	Promote efficient and competitive domestic production of food (for domestic and global markets) for broad based growth and poverty reduction through investments in infrastructure and agricultural technology.	Promote efficient rural, urban and cross border market development for through providing adequate price incentives for producers, sufficient margins for processors and traders, and affordable food at local levels for consumers.	Enhance both access to food and consumption / utilization (greater quantity and quality) through social protection interventions targeted to the most vulnerable, minimizing adverse impacts on other food system stakeholders (producers and traders).
Present Situation	<p>Domestic wheat and rice production accounted for about xx to yy percent of annual supply from 2001 to 2004.</p> <p>Livestock (mainly sheep, goats and cattle) populations declined by an estimated xx percent from 1995 to 200; Livestock incomes were xx percent of crop incomes in 2004.</p> <p>Illicit opium poppy production and processing accounts for between one-third to one half of GDP.</p> <p>Lack of assured and timely irrigation water supply at the farm level is a major important constraint to agricultural growth. Recurring droughts cause major production shortfalls.</p> <p>The agricultural research and extension system, roads and the financial network were also extensively damaged due to prolonged conflict and insecurity.</p>	<p>Regional grain markets appear to be more closely linked with markets in neighboring countries than with markets within Afghanistan.</p> <p>Private sector imports (about twice as large as food aid inflows) help stabilize national grain supplies and prices.</p> <p>There is very little modern grain milling capacity.</p> <p>The domestic trade environment is relatively undistorted by formal public interventions such as high import tariffs, quantitative restrictions, or export subsidies.</p> <p>Development of food markets and private investment in food processing are constrained by inadequate transport, communications and power infrastructure, weak financial institutions, insecurity and corruption.</p> <p>Existing laws, regulations, and procedures inhibit private sector investment instead of encouraging it.</p>	<p>About half the population lives in poverty; in 2002-03, around 20% rural people had inadequate calorie intakes.</p> <p>The majority of Afghans have virtually no reliable access to safe water sources or health care facilities.</p> <p>Almost half of all rural households benefited from relief food / food for work or cash for work during 2002-3. Workfare programs appear largely welfare neutral.</p> <p>Economic constraints and livelihood strategies vary across regions and socio-economic groups, suggesting the need for a multi-dimensional strategy for poverty reduction.</p>

Table 5.1: The Afghanistan Food System: Policy and Program Priorities (cont.)

	Production	Markets (Local, national, regional and global)	Consumption/Social Protection
Policy and Program Priorities	<p>Establish objective of food self-reliance (having sufficient incomes at national and household levels to acquire necessary food) rather than food self-sufficiency (own-production of all food utilized)</p> <p>Promote the efficient and competitive domestic production of food commodities (including wheat) through:</p> <p>(i) Expansion of the scope and effectiveness of irrigation;</p> <p>(ii) Accelerated generation, dissemination and promotion of appropriate technologies for both agricultural production and processing by both women.</p> <p>(iii) Programs designed to encourage diversification through improved quality of horticultural products:</p> <p>(iv) Investments in sustainable systems for affordable animal health and nutrition related services</p> <p>(v) Strategically targeted use of government subsidies;</p> <p>Strengthen institutional capacity in terms of physical infrastructure, staff skills, and knowledge of modern and competitive agricultural sector.</p> <p>Improve regulatory framework. Remove illegal taxation systems imposed on agricultural producers.</p>	<p>Continued investment in market and business infrastructure such as roads, power, water, and telecommunications.</p> <p>Promote competitive markets and avoid market impediments such as (formal or informal) movement restrictions, stock limits, taxes on domestic trade flows between provinces, or government interventions that reduce private incentives for trade.</p> <p>Maintain incentives for private sector imports in response to market demand.</p> <p>Review alternative mechanisms for ensuring timely response to rapid onset disasters including a) strengthening early warning and price monitoring systems; b) promotion of private sector trade flows; c) coordination with international agencies.</p> <p>Promote diversification of production and trade patterns including enhanced integration into the global trading system based on both free and fair trade (removal of trade barriers and WTO accession)</p> <p>If food aid is utilized, monitor potential disincentive effective of food aid on domestic wheat markets.</p> <p>Minimize government direct interventions in food markets such as public procurement, storage and distribution of food commodities.</p> <p>Establish an effective legal regulatory framework to reduce market transaction costs.</p>	<p>Promote sustained and broad based economic growth -- a precondition for widespread and lasting poverty reduction.</p> <p>Ensure that poor people are equipped to participate and benefit from growth through accelerated investments in education and health.</p> <p>Promote productive social protection instruments such as community-based funds, labor intensive public works and micro-finance.</p> <p>Given the high cost of direct food transfers, limit use of food aid and direct food transfers to situations where:</p> <ul style="list-style-type: none"> • Food aid imports are additional resources for the Afghanistan government (i.e. in the absence of food aid, equivalent monetary resources would not be provided by donors) • Availability of food in local markets is a constraint (and injection of cash transfers is unlikely to induce market commodity flows from other regions) <p>and/or there are substantial targeting or nutritional benefits to food transfers in-kind because:</p> <ul style="list-style-type: none"> • The commodity distributed is an inferior good that is self-targeting to poorer consumers • The food commodity can be fortified, so that it carries additional nutritional benefits that are not easily available to targeted households in their normal diets <p>Develop commercially viable programs of flour fortification and nutritional education.</p> <p>Implement additional measures as outlined in the National Vulnerability Program targeted to the poorest and most vulnerable people who are not able to participate in more immediately productive programs.</p>

Annex 1

Wheat Production Estimates in Afghanistan: Comparing NRVA and FAO Crop Assessment Data

The National Rural Vulnerability Assessment (NRVA) survey data on changes in wheat production between 2002 and 2003 are not consistent with the official (FAO) estimates. The FAO estimates indicate a 59 percent increase in production, from 2.686 million tons in 2002 to 4.360 million tons in 2003. NRVA data show a much smaller increase – only 12 percent.

Note that the NRVA derived estimate for total production for 2002 is 2.435 million tons (only 9 percent below the FAO estimate for that year). The NRVA-based production estimate for 2003 (2.729 million tons), however, is 38 percent below the FAO estimate for that year.

This NRVA figure is derived using weights that assume that village level data are representative of villages in a given agro-ecological zone in the corresponding district, using the share of population in an agro-ecological zone by district from the NRVA district level questionnaire.⁵⁸

Changing the weights used does not change the main results: using weights that do not utilize information on agro-ecological zones and that imply that the villages sampled are representative of their district, the percentage increase in production is 12.1 percent. Using only the village level weights (with no adjustment for the size of the village in district or province population), the average percentage increase in production per farmer is only 11.0 percent.

Moreover, according to the NRVA data, only seven provinces had production increases greater than 30 percent: Zabul (171 percent), Badghis (120 percent), Hilmand (50 percent), Herat (41 percent), Kapisa (47 percent), Kabul (38 percent) and Balkh (35 percent).

Under-reporting of the number of large farms would not explain the low percentage increase in wheat production, either. According to NRVA data on increases in wheat production by farm size, the largest farmers (who cultivated more than 4 hectares)⁵⁹ had the smallest percentage increase in production (4.1 percent). The largest percentage increases in production were for farmers with between 1 and 2 hectares of wheat area cultivated – 20.4 percent.

Thus, the discrepancy between percentage increases in wheat production derived from the NRVA survey and the percentage increase reported in the FAO crop assessments is apparently not due to the sampling design of the NRVA survey. Two major (non-exclusive) explanations are possible:

- The NRVA survey understates the percentage increase in wheat production in 2003 because of inaccurate data (e.g., under-reporting of 2003 production by farmers).
- The FAO estimates for 2002 and 2003 overstate the percent increase in wheat production in 2003.⁶⁰

⁵⁸ In the NRVA data, 3804 households (34%) did not respond to questions on wheat production; 92 households (0.8%) reported zero production in 2002 or 2003. The weights described here include an adjustment for non-responding households.

⁵⁹ These farmers accounted for 1.4 percent of the farms nationally (1.8% of households who reported wheat production).

⁶⁰ Note that the large increase in national wheat production reported by FAO is largely due to reported increases in rainfed wheat production. According to NRVA data, five provinces had extraordinarily large

Evidence from Price and Trade Data

Price and trade data for Afghanistan suggest that a very large percentage increase in wheat production is not plausible. Using estimated consumption for 2002/03 as a base, and adjusting consumption for the effects of a 1.9 percent population increase, an estimated 10 percent in incomes (equivalent to the percentage change in poppy-inclusive GDP), and a real price decline of 10 percent, results in an increase in total food demand by up to 400 thousand tons. However, FAO estimates for 2002 and 2003 suggest that net production increased by 1.5 million tons (1.68 million tons less a 10 percent adjustment for seed, feed and wastage), implying that net imports declined by at least 1.1 million tons. Given that estimated net imports in 2002/03 were only 500 thousand tons, the FAO 2003/04 reported production increase would imply net exports of at least 0.6 million tons. In contrast, traders consistently report significant quantities of private sector imports of wheat and wheat flour (Table 3).

In order for estimated net imports to be in the range of 0.3 to 0.6 million tons, the change in production between 2002 and 2003 is estimated as about 300 to 600 thousand tons (10 to 25 percent) -- a figure fairly close to the NRVA estimate of 0.3 million tons (12 percent).⁶¹

Conclusions

There remains significant uncertainty regarding wheat production data in Afghanistan. Neither the levels nor the percentage changes in area, yields and production are consistent across data sources. Evidence from the analysis of demand suggests that the changes in production implied in the official FAO estimates for 2003 (relative to 2002) are not plausible, and the change in production between the two years was probably on the order of 10 to 25 percent. Given the greater availability of data in 2003, it is plausible that this data is more accurate, which would suggest higher availability of wheat in 2002 than earlier indicated, as well as a significant under-reporting of wheat production in the NRVA data. To the extent that consumption of wheat in the NRVA is internally consistent with NRVA production, consumption levels may be under-stated and poverty levels overstated.

Moreover, if the higher production figures are used, private sector imports are only about 10 percent of supply.⁶² (Even with the lower production figures, wheat imports are at most only about 15 percent of supply). Thus, Afghanistan may be nearing the point of market-determined self-sufficiency in wheat. Indeed, it is possible that when more modern wheat milling capacity is installed in Afghanistan, this product will replace imported flour to a large extent, such that even with current production levels, total wheat imports may decline.

increases in rainfed wheat production: Logar (736%), Kabul (569%), Paktika (191%), Badghis (131 percent), Herat (70%).

⁶¹ One possible explanation for the discrepancy in the percentage change in production (2003 vs. 2002) in the two data sources is that yields in 2002 for irrigated land were grossly understated. Using 2003 irrigated wheat yields (2.85 tons/ha) in place of the original 2002 FAO figure (2.02 tons/ha) results in a total production of 3.554 million tons, (22.7 percent higher than the original FAO 2002 figure). The percentage change in production between 2002 and 2003 is then only 22.7 percent instead of the original figure of 62.3 percent. Moreover, the 22.7 percent change is more in line with the NRVA estimated change (12.1 percent). However, this upward adjustment in yields makes FAO average yields on irrigated land (2.85 tons/ha) almost 60 percent higher than the corresponding NRVA yields for both 2002 and 2003. See Annex Table 1.

⁶² Food aid accounts for another 6-7 percent of supply.

Finally, further work is needed to improve the methodology for data collection on food availability in the future, so as to help avoid errors of either over-estimating or under-estimating food assistance needs.

Table A1.1: Afghanistan: Production of Wheat, 2002 and 2003 (FAO Estimates)

Region	IRRIGATED Wheat			RAINFED Wheat			Total Wheat			Population (mns)	Prod./cap (kgs/person)
	Area (000'ha)	Yield (tons/ha)	Prod. (000' tons)	Area (000'ha)	Yield (tons/ha)	Prod. (000' tons)	Area (000'ha)	Yield (tons/ha)	Prod. (000' tons)		
2003											
Northern	441	2.9	1279	984	1.1	1090	1425	1.7	2369	6.5	366.2
Mountains	308	3.0	911	45	0.5	23	353	2.6	934	10.8	86.1
West / SW	309	2.7	825	207	1.1	232	516	2.0	1057	5.3	199.3
Total	1058	2.8	3015	1236	1.1	1345	2294	1.9	4360	22.6	192.8
2002											
Northern	464	1.9	901	449	0.8	351	913	1.4	1252	6.3	197.2
Mountains	225	2.1	477	38	0.8	31	263	1.9	508	10.6	47.7
West / SW	356	2.1	732	210	0.9	194	566	1.6	926	5.2	177.9
Total	1045	2.0	2110	697	0.8	576	1742	1.5	2686	22.2	121.0
Growth Rate (2003 / 2002)											
Northern	-5.0%	49.4%	42.0%	119.2%	41.7%	210.5%	56.1%	21.2%	89.2%	1.9%	85.7%
Mountains	36.9%	39.5%	91.0%	18.4%	-37.3%	-25.8%	34.2%	37.0%	83.9%	1.9%	80.4%
West / SW	-13.2%	29.8%	12.7%	-1.4%	21.3%	19.6%	-8.8%	25.2%	14.1%	1.9%	12.0%
Total	1.2%	41.1%	42.9%	77.3%	31.7%	133.5%	31.7%	23.3%	62.3%	1.9%	59.3%

Note: Northern is defined as north and north-east regions.

Source: FAO/WFP 2003; authors' calculations.

Table A1.2: Afghanistan: Production of Wheat, 2002 and 2003 (NRVA estimates)

Region	IRRIGATED Wheat			RAINFED Wheat			Total Wheat			Population (mns)	Prod./cap (kgs/person)
	Area (000'ha)	Yield (tons/ha)	Prod. (000' tons)	Area (000'ha)	Yield (tons/ha)	Prod. (000' tons)	Area (000'ha)	Yield (tons/ha)	Prod. (000' tons)		
2003											
Northern Mountains	605	1.96	1188	610	1.03	628	1215	1.49	1816	6.47	280.7
West / SW	305	1.69	515	128	0.29	38	433	1.28	552	10.84	50.9
Total	209	1.45	303	55	1.06	58	264	1.37	361	5.30	68.0
	1119	1.79	2006	793	0.91	723	1912	1.43	2729	22.62	120.7
2002											
Northern Mountains	537	2.02	1085	572	1.00	570	1109	1.49	1656	6.35	260.8
West / SW	287	1.67	480	113	0.45	51	400	1.33	531	10.64	49.9
Total	168	1.31	220	42	0.69	29	210	1.19	249	5.20	47.9
	992	1.80	1785	727	0.89	650	1719	1.42	2435	22.19	109.7
Growth Rate (2003 / 2002)											
Northern Mountains	12.7%	-2.8%	9.5%	6.6%	3.2%	10.1%	9.6%	0.1%	9.7%	1.9%	7.6%
West / SW	6.1%	1.2%	7.3%	13.2%	-34.7%	-26.1%	8.1%	-3.7%	4.1%	1.9%	2.1%
Total	24.4%	10.5%	37.5%	31.3%	52.4%	100.1%	25.8%	15.1%	44.8%	1.9%	42.0%
	12.7%	-0.3%	12.4%	9.1%	2.0%	11.2%	11.2%	0.8%	12.1%	1.9%	9.9%

Note: Northern is defined as north and north-east regions.

Source: NRVA 2003; authors' calculations.

Table A1.3: Net Imports under Alternative Estimates of Production and Demand, 2003/04

	Per capita demand		
	No Change	Low Elasticity	High Elasticity
Change in Per Capita Demand	0.0%	4.1%	10.6%
Low: 12% Increase (NRVA)	243 7%	374 10%	581 15%
Medium: 20% Increase	52 1%	183 5%	390 10%
High: 62% Increase (FAO)	-973 -27%	-842 -22%	-635 -16%

Notes: Net imports as a percentage of total utilization shown below import figures.

Low Elasticity: Income elasticity of demand = 0.2; own-price elasticity of demand = -0.2.

High Elasticity: Income elasticity of demand = 0.5; own-price elasticity of demand = -0.5.

Calculations use an approximate real price decline of 10 percent and per capita income increase of 10 percent (11 percent total GDP growth and 1.8 percent population growth).

Dollar price of wheat rose 6.3% (Kabul) with 3.6% nominal exchange rate appreciation.

= 2.6% increase in Afghani price deflated by 10.5% inflation = 7.1 percent real price decline.

Sources: Author's calculations; FAO and WFP Kabul data; World Bank (2004a), Table 1.1

**WORLD FOOD PROGRAMME
EVALUATION REPORTS
SUMMARY EVALUATION REPORT OF PRRO 10233 IN
AFGHANISTAN
EXECUTIVE SUMMARY**

Annex 2

Mid-term Evaluation of Food Aid Programs in Afghanistan, 2004

This report synthesizes the findings of an independent evaluation of the Afghanistan protracted relief and recovery operation 10233 approved for April 2003 to April 2005. The evaluation was commissioned by the Office of Evaluation and fielded in May 2004. The evaluation team found that WFP Afghanistan is doing a commendable job in implementing WFP's mandate despite the security situation, which has worsened since the PRRO was designed at the end of 2002. The operation has a number of strengths such as strong synergy between project design and government priorities, effective logistics and pipeline management, and creative and innovative project design, especially in activities related to nutrition. Interviews with partners and beneficiaries reflected general satisfaction with WFP assistance in Afghanistan.

In line with WFP's shift to results-based management, the evaluation team looked at results at the output and outcome levels. However, because of a weak monitoring system it was difficult to get reliable data on beneficiary numbers or any results at the outcome level. The evaluation team based its findings on triangulation between country office monitoring data, interviews with partners, studies and interviews with beneficiaries.

Support for internally displaced people in camps was very effective, but otherwise the evaluation found that the relief objectives were not fully met because (i) free food distributions had been reduced in reaction to government and donor criticism of food aid and (ii) food for work was spread so thinly that the average household received only enough to support a family for 45 days, regardless of the food gap. This was exacerbated by a "one-size-fits-all" approach to food for work that paid insufficient attention to differences between districts with acute/very high food insecurity and those with moderate food insecurity. In many cases, the food assistance was insufficient to have a significant impact on the livelihoods of those who received it.

Recovery objectives were partially met through a combination of food for education, food for training and food for work; the effectiveness of school feeding was reduced, however, by an unreliable biscuit supply. Performance in asset creation was highly satisfactory in Badakhshan, where WFP has supported food for work for over a decade and established long-standing relationships with implementing partners who mobilized resources for non-food inputs. In provinces that did not have previous experience with asset-oriented food for work, the quality and sustainability of the work are less satisfactory.

In its second year of implementation, the PRRO should concentrate on ensuring greater effectiveness at the outcome level of (i) food for work, (ii) food for training, (iii) food for education, (iv) assistance to the rural vulnerable and (v) food fortification by working more closely with partners that can provide the non-food inputs necessary to achieve the outcomes and

by ensuring a better match between assessed needs and food rations. Assistance to the urban vulnerable needs to be reconsidered, because the changed urban economic environment has made the women's bakeries a less effective instrument for addressing urban vulnerability. Free food for internally displaced people in camps should continue. The country office should improve the linkage between assessment, programming and monitoring – especially of outcomes – in order to improve programme effectiveness.

Annex 3

Ensuring Food Security following Production Shortfalls – The Role of Food Aid

Periodic wheat production shortfalls in Afghanistan can threaten food security in two major ways: by directly reducing availability of food and by reducing access to food through loss of incomes and higher food prices. Food aid, one of the major policy instruments utilized to address food insecurity, averaged 304 thousand tons per year from 2000/01 to 2002/03 period, and accounted for 11 percent of total availability of wheat. (Private commercial imports accounted for an estimated 24 percent of total availability in the same period.) Whether food aid is the most appropriate instrument for enhancing food security in any given context, however, depends crucially on whether household food insecurity is due to problems of availability, access or both.

Afghanistan's food production is highly variable, due mainly to large fluctuations in the availability of water from snow melt or rainfall. Severe droughts, combined with a hazardous security environment, led to poor harvests in 1998, 1999 and 2002, and especially severe reductions in wheat and other agricultural production in 2000 and 2001.

Moreover, food markets appear to be only weakly linked within much of Afghanistan because of the mountainous terrain in much of the country, inadequate road infrastructure, physical insecurity, and relatively small size of markets in isolated parts of the country that limit opportunities for economies of scale in trade. Thus, in most years, the evidence suggests that little grain flows across various regions of the country, e.g., from the northeast surplus provinces of Kunduz, Takhar, and Baghlan to major deficit regions such as Kandahar in the south or Herat in the West.

Nonetheless, Afghanistan's domestic markets are strongly linked to markets in neighboring countries and imported grain flows from these countries have added to domestic availability of grain and stabilized market prices in recent years. According to available survey evidence, almost all of this commercially imported wheat in 2004 has been in the form of flour.

Imported wheat flour flows from Peshawar, Pakistan to Jalalabad and Kabul in eastern Afghanistan; Pakistan wheat flour also moves through Quetta to supplement food supplies in Kandahar in southern Afghanistan. Wheat flour from Kazakhstan, Uzbekistan and Turkmenistan adds to food supplies in the north in drought years and also flows through to Kabul and other parts of Afghanistan. Finally, although Iran is a wheat deficit country, some reports indicate that Iranian flour or flour originating from Kazakhstan, supplies Herat and other markets in the western region of Afghanistan.

Because of these private sector import flows, wheat and wheat flour prices in major Afghanistan cities have generally been close to import parity prices (the cost of imported wheat grain or flour from the lowest cost international supply source) despite the drought and physical insecurity conditions in recent years. Private sector imports, combined with food aid flows, have to a large extent offset production shortfalls, ensuring adequate food availability at a national level (and in various major markets).

These private market inflows do not necessarily ensure adequate food availability in more isolated markets, such as those in the mountainous areas of west-central Afghanistan – nor do they guarantee food security at the household level, since poor households may lack the resources to purchase sufficient food. Thus, widespread chronic food insecurity persists even in years with

relatively good harvests, as evidenced by the findings of the NRVA for 2003. For these households, other interventions are needed to increase their access to food. One of the standard interventions is food aid – this is discussed below. However, interventions do not necessarily need to be food transfers. **Where market availability of food is not a constraint, increasing household incomes is the best way to enhance their access to food**, either by enabling purchases of existing local food supplies, or by stimulating traders to respond to enhanced effective demand. This is the first best solution. In situations where it is not possible to increase household incomes (in the short run) and/or where market availability of food is a constraint, food aid can be an acceptable instrument for welfare enhancement.

Guidelines to Ensure the Appropriate Use of Food Aid

In order to maximize the efficiency of resource use and minimize the risk of disincentives for domestic production and market development, food aid use should be restricted to situations where the comparative advantage over other interventions, for example cash transfers, is clear. Food aid and food transfers in-kind will tend to be most appropriate where:

- Lack of availability of food in local markets (most often signaled by high prices) is a constraint on food security, as is the case for rural areas in mountainous regions (particularly in central and western Afghanistan) with poor road and marketing infrastructure. These isolated markets tend also to be those where purchasing power is weakest.
- Where weak market demand, rather than poor infrastructure, is the binding constraint on volume of market flows, cash-based programs may induce inflow of additional market supplies.
- In some cases, the provision of food can be more effective than other interventions in targeting benefits to the poor. This is particularly true where the commodity distributed is an inferior good (i.e., a good for which quantity consumed falls as household incomes rise). This is likely not the case for wheat flour in Afghanistan, which is consumed in large quantities by all income groups.
- Food in kind can be fortified, so that certain interventions (such as supplementary or school based feeding programs) may carry additional nutritional benefits.
- The food aid imports provide an additionality to the national budget, i.e., in the absence of food aid, Afghanistan could not obtain the equivalent value of resources in cash to resource other programs for the poor.

Box A3.1: Where Markets are Weak: Going Carefully with Cash

Where market analysis highlights weak integration regarding the ability of traders to effectively respond to increased purchasing power (e.g., as a result of cash based safety net resource transfers), the following questions can be used to frame assessment and monitoring:

- Under what circumstances will traders respond to an increase in demand?
- What level of purchasing power is necessary and at what distance from supply to ensure an inflow of food or other items?
- How do prices behave following an injection of cash?
- At what level of cash inflow does inflation become inevitable?
- How do beneficiaries (gender/economic status) in varying circumstances (emergency/non-emergency) spend cash?
- How can investment in livelihoods be encouraged while allowing beneficiaries the flexibility to satisfy their consumption needs?

Peppiatt, D., J. Mitchell and P. Holzmann. 2000. *Buying Power: The Use of Cash Transfers in Emergencies*. British Red Cross.

Conclusions

Apart from its important role in addressing rapid onset emergencies, food aid can be a valuable resource for increasing availability of food in the short term in areas in where markets are not functioning well. However, food aid has the potential to lead to reduced incentives for domestic production and market development. In order to avoid these adverse effects, care should be taken to limit the use of food aid to programs and areas where food aid is a more efficient mechanism and where other interventions are not feasible in the short-run. **Increased analytical capacity and reliable data** are needed to monitor prices and availability and to conduct the detailed analysis needed to assess food aid needs in the short and medium term.

Annex 4

Supplementary Annex Tables

Table A4.1: Regional Wheat and Rice Production, Trade and Consumption, 2001 (FAO data)

		Population (mns)	Production (mn tons)	Prod/cap (kgs)	Consumption (mn tons)	Cons/cap (kgs)	Net Imports (mn tons)	Net Imps/ Cons (percent)	Total Calories/cap (calories/day)	Grain Calories/cap (calories)	Grain Cal Share (percent)
Afghanistan*	Wheat	22.6	3.5	156.8	3.9	172.1	0.70	18.0%	2859	1367	47.8%
	Rice	22.6	0.3	12.9	0.4	18.3	0.15	36.6%	2859	187	6.5%
Pakistan	Wheat	145.0	19.0	131.2	19.0	131.1	-0.69	-3.6%	2457	1042	42.4%
	Rice	145.0	3.9	26.8	1.8	12.4	-2.40	-133.2%	2457	127	5.2%
Iran	Wheat	71.4	9.5	132.5	12.1	169.9	6.36	52.5%	2931	1459	49.8%
	Rice	71.4	1.3	18.6	1.7	23.8	0.65	38.1%	2931	248	8.5%
Kazakhstan	Wheat	16.1	12.7	789.3	2.0	125.8	-3.21	-158.5%	2477	954	38.5%
	Rice	16.1	0.1	8.2	0.1	6.1	-0.01	-5.2%	2477	59	2.4%
Kyrgyzstan	Wheat	5.0	1.2	238.7	1.0	210.0	0.07	7.1%	2882	1633	56.7%
	Rice	5.0	0.0	2.2	0.0	2.3	0.00	6.9%	2882	22	0.8%
Tajikistan	Wheat	6.1	0.4	63.3	0.7	121.3	0.35	46.4%	1662	943	56.7%
	Rice	6.1	0.0	4.3	0.0	6.5	0.00	0.8%	1662	64	3.9%
Turkmenistan	Wheat	4.8	1.8	364.1	1.0	211.4	0.28	27.4%	2738	1644	60.0%
	Rice	4.8	0.0	5.4	0.0	5.3	0.00	6.2%	2738	52	1.9%
Uzbekistan	Wheat	25.3	3.8	149.9	3.9	155.1	0.53	13.4%	2197	1207	54.9%
	Rice	25.3	0.0	1.8	0.2	6.3	0.10	64.7%	2197	61	2.8%
Regional Ave (w/o Afghan)	Wheat	273.7	48.3	176.5	39.9	145.8	3.7	9.3%	2553	1180	46.2%
	Rice	273.7	5.5	19.9	3.8	14.0	-1.7	-43.1%	2553	144	5.6%

* Afghanistan data is for 2003/04 using best estimates; calories per capita in Afghanistan is NRVA rural average.

Table A4.1: Regional Wheat and Rice Production, Trade and Consumption, 2001 (FAO data, cont.)

		Population (mns)	Production (mn tons)	Prod/cap (kgs)	Consumption (mn tons)	Cons/cap (kgs)	Net Imports (mn tons)	Net Imps/ Cons (percent)	Total Calories/cap (calories/day)	Grain Calories/cap (calories)	Grain Cal Share (percent)
Afghanistan*	Wheat	22.6	3.5	156.8	3.9	172.1	0.70	18.0%	2859	1367	47.8%
	Rice	22.6	0.3	12.9	0.4	18.3	0.15	36.6%	2859	187	6.5%
Pakistan	Wheat	145.0	19.0	131.2	19.0	131.1	-0.69	-3.6%	2457	1042	42.4%
	Rice	145.0	3.9	26.8	1.8	12.4	-2.40	-133.2%	2457	127	5.2%
Bangladesh	Wheat	140.4	1.7	11.9	3.3	23.7	1.67	50.1%	2187	202	9.2%
	Rice	140.4	24.2	172.4	21.8	155.3	0.15	0.7%	2187	1547	70.7%
India	Wheat	1024.9	69.7	68.0	59.2	57.8	-3.01	-5.1%	2487	493	19.8%
	Rice	1024.9	93.2	90.9	78.2	76.3	-2.19	-2.8%	2487	756	30.4%
Nepal	Wheat	23.6	1.2	49.1	0.9	38.4	0.00	-0.4%	2459	351	14.3%
	Rice	23.6	2.8	117.7	2.4	99.9	0.04	1.8%	2459	922	37.5%
Sri Lanka	Wheat	19.1	0.0	0.0	0.8	41.9	0.73	91.0%	2274	293	12.9%
	Rice	19.1	1.8	94.0	1.8	92.3	0.05	2.8%	2274	894	39.3%

* Afghanistan data is for 2003/04 using best estimates.

Rice in milled equivalents; calories per capita in Afghanistan is NRVA rural average; Note that wheat cons in NRVA is 162.6 kgs/person/year.

Source: Calculated from FAO Food Balance Sheets (FAOSTAT).

Table A4.2: Grain Production and Consumption in Afghanistan by Province, 2002 and 2003

Province	Population	Estimated	Production	Balance	Production	Balance
	(1,000s)	Consumption	2002	2002	2003	2003
		(150 kg/cap)				
North	2,984.5	447,675	281,312	(166,363)	335,822	(111,853)
Faryab	794.1	119,115	92,557	(26,558)	100,447	(18,668)
Jawazjan	447.5	67,125	37,888	(29,237)	47,435	(19,690)
Sar-i-Pul	474.8	71,220	45,522	(25,698)	50,068	(21,152)
Balkh	949.6	142,440	78,151	(64,289)	105,668	(36,772)
Samangan	318.5	47,775	27,194	(20,581)	32,204	(15,571)
Northeast	3,046.9	457,035	1,328,174	871,139	1,442,198	985,163
Baghlan	726.6	108,990	265,749	156,759	300,971	191,981
Kunduz	833.2	124,980	624,967	499,987	666,966	541,986
Takhar	761.4	114,210	278,717	164,507	293,175	178,965
Badakhshan	725.7	108,855	158,741	49,886	181,086	72,231
West	1,857.0	278,550	133,636	(144,914)	200,653	(77,897)
Heart	1208	181,200	88,965	(92,235)	125,741	(55,459)
Farah	343.4	51,510	24,158	(27,352)	29,852	(21,658)
Badghis	305.6	45,840	20,513	(25,327)	45,060	(780)
West Central	884.1	132,615	70,717	(61,898)	56,264	(76,351)
Ghor	492.4	73,860	53,182	(20,678)	35,167	(38,693)
Bamyan	391.7	58,755	17,535	(41,220)	21,097	(37,658)
Central	5311.2	796,680	119,112	(677,568)	144,056	(652,624)
Kabul	3445	516,750	22,729	(494,021)	31,306	(485,444)
Parwan	737.2	110,580	30,909	(79,671)	31,256	(79,324)
Kapisa	364.9	54,735	28,317	(26,418)	41,696	(13,039)
Logar	315.4	47,310	11,264	(36,046)	14,380	(32,930)
Wardak	448.7	67,305	25,893	(41,412)	25,418	(41,887)

Source: National Risk and Vulnerability Assessment (NRVA).

Table A4.2: Grain Production and Consumption in Afghanistan by Province, 2002 and 2003 (cont.)

South	1,977.9	296,685	94,126	(202,559)	102,878	(193,807)
Paktia	401.3	60,195	19,723	(40,472)	22,721	(37,474)
Paktika	357.2	53,580	16,669	(36,911)	20,505	(33,075)
Khost	304.6	45,690	22,826	(22,864)	25,189	(20,501)
Ghazni	914.8	137,220	34,908	(102,312)	34,463	(102,757)
East	1,922.9	288,435	248,164	(40,271)	256,309	(32,126)
Nangahar	1105.7	165,855	144,420	(21,435)	150,462	(15,393)
Laghman	378.1	56,715	60,523	3,808	60,561	3,846
Kunar	328.1	49,215	35,897	(13,318)	38,792	(10,423)
Nuristan	111	16,650	7,324	(9,326)	6,494	(10,156)
Southwest	2706.9	292575	114200	-291835	157827	-248208
Kandahar	913.9	137,085	15,384	(121,701)	19,065	(118,020)
Helmand	756.4	113,460	67,138	(46,322)	100,825	(12,635)
Zabul	249.1	37,365	1,661	(35,704)	4,505	(32,860)
Nimroz	151.5	22,725	2,101	(20,624)	2,421	(20,304)
Uruzgan	636	95,400	27,916	(67,484)	31,011	(64,389)
TOTAL	20,691	3,103,710	2,389,441	(714,269)	2,696,007	(407,703)

Source: Calculated from National Risk and Vulnerability Assessment (NRVA) data.

Table A4.3: Grain Production and Consumption in Afghanistan by Region, 2002 and 2003

	Pop.	Estimated	Production	Balance	Production	Balance
Province	(1,000s)	(150 kg/cap)	2002	2002	2003	2003
North	2,984.5	447,675	281,312	(166,363)	335,822	(111,853)
Northeast	3,046.9	457,035	1,328,174	871,139	1,442,198	985,163
West	1,857.0	278,550	133,636	(144,914)	200,653	(77,897)
West Central	884.1	132,615	70,717	(61,898)	56,264	(76,351)
Central	5,311.2	796,680	119,112	(677,568)	144,056	(652,624)
South	1,977.9	296,685	94,126	(202,559)	102,878	(193,807)
Southwest	2,706.9	406,035	114,200	(291,835)	157,827	(248,208)
TOTAL	20,691.4	3,103,710	2,389,441	(714,269)	2,696,007	(407,703)

Source: Calculated from National Risk and Vulnerability Assessment (NRVA) data.

Table A4.4: Medium Sized Milling Facilities in Afghanistan, 2004

	Storage Capacity MT	Milling Capacity MT/day	Is it functional at all?	# of employees
Public mills				
Kabul	60,000	150	Yes	430
Kandahar	40,000	0	No	0
Mazar-e-Sharif	40,000	60	Yes	209
Pol-e-Khumri	40,000	0	No	0
Herat	40,000	-	-	-
Private mills				
Kabul				
Kabul Flour Mills	6,000	200	Yes	120
Mazar-e-Sharif				
Sayed Kemal	3,000	60	Yes	31
Sayed Jamal	2,000	45	Yes	120

Source: Chabot (2004).

Table A4.5: Results of Anthropometric Surveys in Kabul (1995 – 2003)⁶³

Data of Survey	Acute Malnutrition (percent)	Chronic Malnutrition (percent)
November 1995	6.2	--
May 1996	6.7	--
December 1996	5.1	55.2
June 1997	6.8	52.1
December 1997	7.5	63.0
February 1999	8.7	61.3
February 2000	2.8	53.7
October 2000	8.0	57.5
March 2001	3.8	62.6
August 2002	11.7	47.9
August 2003	8.1	34.4
November 2003	4.2	44.1

Acute malnutrition (wasting) is measured as percentage of children with weight for height Z-scores below 2 standard deviations of reference population.

Chronic malnutrition (stunting) is measured as percentage of children with height for age Z-scores below 2 standard deviations of reference population.

Source: UNICEF (2003).

⁶³ Ibid

Table A4.6: Human and Social Capital – Policy Priorities and Programs

Policy Priority	Associated Programs (Public Investment Programs and their Sub-components)	1382 Budget (million)	1383 Budget (million)
Prioritization of investment in human capital (health, nutrition and education) for immediate and longer term impact on poverty through promotion of universal access to services	Education PIP	109.9	277.0
	Public Health and Nutrition PIP	153.5	289.4
Build a more open democratic society through freedom of expression and non-discrimination	Culture Media and Sports PIP	19.0	34.3
Mainstream challenges of ensuring stability, security and economic prosperity with regard to sustainable re-integration of returnees and IDPs	Refugees and Internally Displaced PIP (+handled as cross cutting issue in LSP PIP)	31.5	82.6
Special attention to access and inclusion of different groups of women and men to benefits derived from economic growth	All PIPs; Livelihood and Social Protection PIP	233.5	216.1
Focus of targeted investments in livelihood promotion to foster self-reliance and accelerate poverty reduction	Micro-finance and Business Development Services Sub-Programs of LSPPIP		
Provision of specific targeted interventions, subsidized support and direct social transfers for extreme vulnerability (poor disabled; poor female headed households, destitute households, women and children at risk, etc.)	National Vulnerability Program (National Priority Program within LSP PIP)		
Ensure public capacities and responsibilities to provide emergency response	National Disaster Risk Management Sub-Program of LSP		
Community action, involvement and ownership key to sustainability of reconstruction efforts through transfer of resources and decision rights to the local level	(National Solidarity Program, National Emergency Employment Program, and National Drinking Water Project – Sub Programs of LSP	32.6	168.8
Mainstreaming a labor-based approach to investments in rural infrastructure	National Emergency Employment Program – Sub Program of LSP	68.2	72.1

Table A4.7: Afghanistan: LSP Significant Achievements in 1382 (FY2003/04)

National Emergency Employment Program (NEEP)	The NEEP generated 8 million labour days through establishment of a nationwide employment based safety net for the construction of rural infrastructure (including 5000 km of rural roads) using mainly cash payments
National Solidarity Program (NSP)	The NSP, Afghanistan’s flagship intervention for community empowerment, provided resources through block grants for community managed small-scale reconstruction and development in rural areas , and promoted more participatory and inclusive decision making and governance at the village level. The target is to cover the country’s approximately 20,000 villages over a four year period. As of May 2004, 4,600 village level community development councils had been elected, 3,400 village development councils completed and 2,350 sub-projects submitted to approval.
Comprehensive Disabled Afghan’s Program (CDAP)	The delivery of services to 30,000 disabled people in Herat, Farah, Kandahar, Ghazni, Mazar and Takhar.
Community Based Rural Water Supply and Sanitation Program (CBRWSS)	The construction of over 12,000 water points across the country with prioritisation given to areas where pressure on host communities resulting from returning refugees and IDPs has resulted in particularly acute needs for safe water and sanitation facilities.
National Area Based Development Program (NABDP)	The formulation and implementation of immediate recovery and development projects in areas where the local economy has been particularly damaged, based on local resources and existing / historical skills and productive enterprises. 317 projects valued at over \$17.9 million across 34 provinces.
Micro-Finance Support Facility in Afghanistan (MISFA)	The establishment of MISFA following a National Micro-Finance Workshop in February to provides funds for the competitive contracting of specialist professional agencies to sustainably deliver financial services to poor Afghans. Over 20,000 families received loans in 1382. As of May 2004 30,000 loans have been disbursed to clients (90% of whom are women) and the repayment rate is 98%.

Table A4.8: Afghanistan: Food Aid Costs, 2002-03^a

	Planned Quantity (tons)	Price (\$/ton)	Plan Cost (mn \$)	Shipping* (mn \$)	Total Cost (mn \$)	Total Cost (%)	Total Cost (\$/ton)
Cereals	496,551	167	82.9	82.1	165.04	26.3%	332
Mixed / blended foods	44,042	539	23.7	23.5	47.25	7.5%	1073
Miscellaneous	3,757	152	0.6	0.6	1.14	0.2%	303
Oils and fats	61,698	761	47.0	46.5	93.45	14.9%	1515
Pulses, vegetables	12,941	338	4.4	4.3	8.71	1.4%	673
Total Commodities	618,989	256	158.6	157.0	315.57	50.2%	510
External transport			40.2			12.7%	
LTSH			78.5			24.9%	
ODOC			6.8			2.2%	
DSC			31.4			10.0%	
Total overhead			157.0			49.8%	
Total budget	618,989	510	315.6			100.0%	
No. of beneficiaries	9,243,000						

^a WFP Protracted Relief and Recovery Operations (PRRO) budget for April 2002 to December 2003.

Notes: Shipping costs include all "overhead" items (external transport, LTSH, ODOC, DSC).

Shipping costs are allocated across commodity using each commodity's share in total commodity pre-shipment cost (plan cost of \$158.6 million).

Source: World Food Programme, Kabul; Neun and Fitzherbert (2003), p. 66.

Table A4.9: Afghanistan: Food Aid Costs, 2002-03. (Alternative Estimates)^a

	Planned Qty (tons)	Price (\$/ton)	Plan Cost (mn \$)	Shipping* (mn \$)	Total Cost (mn \$)	Total Cost (%)	Total Cost (\$/ton)
Estimate 1:							
Cereals	496,551	167	83	82	165	52%	332
Non-cereals	122,438	618	76	75	151	48%	1229
Total	618,989	256	158.6	157	316	100%	510
Estimate 2:							
Cereals	496,551	167	83	126	209	66%	421
Non-cereals	122,438	618	76	31	107	34%	871
Total	618,989	256	159	157	316	100%	510

^a WFP Protracted Relief and Recovery Operations (PRRO) budget for April 2002 to December 2003.

Estimate 1: Shipping costs allocated by value shares of commodities.

Estimate 2: Shipping costs allocated by weight shares of commodities.

Source: Authors' calculations; World Food Programme, Kabul; Neun and Fitzherbert (2003), p. 66.

Box A4.1: National Emergency Employment Program

Afghanistan's National Emergency Employment Program was launched as a National Priority Program in 2002. While initially consisting as one component of the World Bank-funded Community Empowerment and Labour Intensive Public Works Project, the framework of NEEP has expanded to encompass three ministries and a diversified portfolio of coordinated interventions establishing public works / infrastructure projects integrating a labor-based approach.

To date the achievements of NEEP are significant and include rapid start up investment in infrastructure while providing employment opportunities with cash wages, signaling the Government's determination to break out of a largely humanitarian programming framework. Since the start of 1382, 7.2 million labor days have been created and over seven thousand km of roads constructed and rehabilitated since the inception of the program as well as other infrastructure outputs (e.g., 51 bridges, 188 wells, 43 schools, 574 canals and 870 other structures). In 1382 the total level of investment was \$31 million and this rose to \$61 million in 1383.

The experience with NEEP to date highlights critical challenges facing 'state building' and 'reconstruction' agendas. These include: (i) rationalizing ministerial mandates around rural infrastructure investments; (ii) addressing private sector capacity constraints; (iii) accelerating efforts for institutional strengthening at sub-national level; (iv) ensuring resource transfers are increasingly channeled through provincial structures; and (v) the promotion of pro-poor participatory planning processes in support of community driven development principles.

Originally conceived as a vehicle for the provision of short-term employment opportunities to poor Afghans, it is clear that NEEP needs to adapt to the changing landscape of the development agenda in Afghanistan. However, given the increased significance of the private sector in generating employment opportunities through out Afghanistan, coupled with the expansion of the National Solidarity Program and infrastructure and investment programs⁶⁴, future directions for NEEP to evolve as an integrated framework for investment in rural and urban infrastructure are currently under scrutiny. The potential role of NEEP in supporting national processes of policy development is significant, including the establishment and promotion of optimum standards and norms for planning and investment in rural infrastructure and integrating a labor-based approach as a core pro-poor commitment and as part of an integrated social policy. There may, therefore, be a strong case to shift from NEEP to a ***National Rural / Urban Infrastructure Support Program***.

⁶⁴ These include (i) *Transport Public Investment Program* - Over the next seven years the required funding commitments for transport total \$7,519 billion (SAF, 2004) (ii) *National Solidarity Program* – particularly the introduction of block grant allocation for inter-village infrastructure priorities through district level committees, (iii) *Afghanistan Stabilisation Program* – provincial stabilization funds for rural infrastructure, establishing basic systems for sub-national government and coherent resource allocation mechanisms (iv) *Private Sector Development and Skills Development National Priority Programs* – to ensure that the growth of the private sector is sustainable complementary to investment priorities (v) *National Vulnerability Program* – to promote initiatives to ensure that the extremely poor and most at risk are able to participate in growth and access the benefits.

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