

Niger

Food Security and Safety Nets

Jenny C. Aker, Carlo del Ninno, Paul A. Dorosh, Menno Mulder-Sibanda and Setareh Razmara

Africa Social Safety Net and Social Protection Assessment Series



February 2009



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Until recently, most countries in Africa implemented safety nets and social protection programs only on an ad hoc basis. In the wake of the global economic, food and fuel price crises starting in 2008, however, policymakers in Africa began to increasingly view safety nets as core instruments for reducing poverty, addressing inequality, and helping poor and vulnerable households to manage risk more effectively. During FY2009-2013, to support governments in their quest to understand better how to improve the efficiency and effectiveness of safety nets in their countries, the World Bank's Africa Region undertook social safety net or social protection assessments in a number of countries in Sub-Saharan Africa. By 2014 assessments have been completed or are under preparation for over 25 countries in sub-Saharan Africa. These assessments analyze the status of social protection programs and safety nets, their strengths and weaknesses and identify areas for improvement, all with the aim of helping governments and donors to strengthen African safety net systems and social protection programs to protect and promote poor and vulnerable people. They were all carried-out with the explicit aim of informing governments' social protection policies and programs. With the results of analytical work like these assessments and other types of support, safety nets and social protection programs are rapidly changing across Africa. For a cross-country regional review, please see "[Reducing Poverty and Investing in People: The New Role of Safety Nets in Africa](#)," which pulls together the findings and lessons learned from these assessments and other recent studies of safety net programs in Africa.

Abstract

This study aims to assist the Government of Niger in developing a multi-sectoral approach to reducing the population's vulnerability to food insecurity. The study reviews food security policies and programs in Niger, and provides an action plan for strengthening the existing system and developing an effective safety net strategy. The study finds that targeting of food aid has been either weak with significant leakages. Moreover, although the need to support poor and food insecure households is substantial, safety nets are small, receive limited funding, and are designed for emergency food crises. The study recommends to improve the efficiency and scope of safety net programs in Niger and to promote effective strategies to improve food availability and the emergency response systems.

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Niger Government Fiscal Year

January 1 to December 31

ABBREVIATIONS AND ACRONYMS

CCA	Food Crisis Unit/ <i>Cellule de Crise Alimentaire</i>
CFA	African Community Franc/ <i>Franc de la Communauté Financière Africaine</i>
CFW	Cash-for-Work
CMC	National Consultation Committee/ <i>Commission Mixte de Concertation</i>
CIC	Center for Information and Communication of the National Body for the Prevention and Management of Food Crises (<i>DNPGCA</i>)/ <i>Centre d'information et de communication (CIC) du Dispositif national prévention et de gestion des crises alimentaires (DNPGCA)</i>
CILSS	Permanent Inter-state Committee for the Fight Against Drought in the Sahel/ <i>Comité Permanent Inter Etats de Lutte contre la Sécheresse dans le Sahel</i>
CRS	Catholic Relief Services
CV	Coefficient of Variation
DHS	Demographic and Health Survey
DNPGCA	National Body for the Prevention and Management of Food Crises/ <i>Dispositif National de Prévention et de Gestion des Crises Alimentaires</i>
DPP	Directorate for Plant Protection
DSBE	Survey on Satisfaction of Basic Needs
ECOWAS	Economic Community of West African States
ECVAM	Survey on Business Conditions and Household Food Vulnerability/ <i>Enquête sur la Conjoncture et la Vulnérabilité Alimentaire des Ménages</i>
EDS/MICS	Demographic and Health Survey/Multiple Indicator Cluster Survey
EPP2	Second Participatory Survey on Poverty
EWS	Early Warning System

FAO	Food and Agriculture Organization
FFW	Food for Work
GDP	Gross Domestic Product
GIS	Geographic Information System
GNI	Gross National Income
GoBF	Government of Burkina Faso
GoN	Government of Niger
HDI	Human Development Index
HKI	Helen Keller International
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IPPTE	Initiative Pays Pauvres Très Endettés
INS	National Statistical Office
MSF	Doctors Without Borders/ <i>Médecins Sans Frontières</i>
NGOs	Non-governmental Organizations
OPVN	Office of Food Products/ <i>Office des Produits Vivriers du Niger</i>
PLHAs	Persons living with HIV and AIDS
PTF	Partenaires Techniques et Financiers
PRSP2	Second Poverty Reduction Strategy
QUIBB	Questionnaire on Basic Indicators and Welfare/ <i>Questionnaire sur les Indicateurs de Base et de Bien-être</i>
RDS	Rural Development Strategy
SAP	Early Warning System Coordination Unit / <i>Cellule de Coordination du Systeme d'Alerte Précoce</i>
SFSB	Soy-Fortified Bulgar Wheat
SIMA	Agricultural Market Information System/ <i>Système d'Informations sur le Marché Agricole</i>
SIMB	Livestock Market Information System/ <i>Système d'Informations sur le Marché bétail</i>
SVFs	Seed Vouchers and Fairs
UEMOA	Economic and Monetary Union of West Africa/ <i>Union Économique et Monétaire Ouest Africaine</i>
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Program
USAID	United States Agency for International Development
FEWS NET	USAID's Famine Early Warning System Network
WAEMU	West African Economic and Monetary Union
WFP	World Food Programme
WHO	World Health Organization

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EXECUTIVE SUMMARY

Niger is a very poor country that faces serious problems of poverty and household food insecurity. With a per capita gross national income (GNI) of US\$240 and an estimated 62 percent of the population living below the poverty line, Niger is one of the lowest-ranked countries on the United Nations' Human Development Index. The incidence of poverty has remained constant since the early 1990s (63 percent in 1993), mainly due to lack of resources, low agricultural productivity, and high population growth. Currently approximately 85 percent of the population lives on less than US\$2 per day, with 65 percent living on less than US\$1 per day. Although the magnitude of poverty and food insecurity is most evident during years of drought, the problem is in fact a chronic one. Low levels of food availability, high population growth, limited economic access to food because of low incomes relative to market prices, and inadequate health care have resulted in much of the population being poorly nourished, even in years of normal harvest.

Reducing vulnerability and ensuring food and nutrition security is an overarching priority for the government. Maintaining food security at the national and household level is an important priority for developing countries in general, both for the welfare of the poor and for political stability. In order to ensure food security, governments have adopted various strategies, including making efforts to increase staple food crop production (often with the explicit goal of food self-sufficiency), intervening in the market, and introducing a variety of safety net programs, especially during emergencies. In Niger, where profound vulnerabilities combined with a high level of population growth (3.3 percent per year) have resulted in endemic food insecurity, the government is faced with a serious challenge. Food aid has been an important resource for the government and has been integral to the provision of safety net interventions, especially emergency responses. In this framework, since 1998, Niger's government and major food aid donors have jointly managed a National Framework for the Prevention and Management of Food Crises (*Dispositif National de*

Prévention et de Gestion des Crises Alimentaires or DNP-GCA). The mandate of the DNP-GCA is to (i) help the government to build up cereal and financial reserves for food aid during crises and (ii) implement actions to support food-insecure populations during food crises. Moreover, in the government's Rural Development Strategy (RDS) and its second Poverty Reduction Strategy (PRSP2), it has established the strategic vision, policies, and institutional framework to address food security issues. The RDS, which is the national agriculture policy, has four objectives as follows: (i) to secure the living conditions of the population by preventing the occurrence of food crises; (ii) to increase the incomes of the rural population by increasing their access to economic opportunities; (iii) to strengthen the capacity of public institutions and professional agricultural organizations; and (iv) to support increased food production.

In this context, the purpose of this study is to contribute to the existing strategy by helping the government to develop a holistic, multi-sectoral, and institutional approach to reducing the population's vulnerability to food insecurity. A comprehensive food security strategy needs to find ways to enhance food security by increasing agricultural productivity as well as through policies related to education, health and nutrition, and population growth that are crucial for diversifying and increasing household incomes (and thereby access to food). Since safety nets are also essential for addressing chronic food insecurity, the report also discusses the food security strategy in the context of social protection interventions. Within a social protection perspective, this study is designed to synthesize considerable existing analysis, review food and nutrition security policies and programs in Niger, and provide an action plan for strengthening the existing system and developing an effective food security and safety net strategy in the context of the government's poverty reduction strategy. This report adds value to the ongoing policy discussions in two ways:

- First, it presents new empirical analysis of (i) household food insecurity and vulnerability during food crises as well as during normal periods, (ii) the structure and integration of cereal markets within Niger and of markets in neighboring

countries, and (iii) the causes of the 2005 food crisis, and lessons learned about the implications of various degrees of cross-border flows between Niger and Nigeria.

- Second, it provides concrete short-term and medium-term recommendations to help the government to improve the performance of existing programs aimed at increasing food security, particularly related to preparedness for and responses to food crises, and to design efficient safety nets targeted to vulnerable populations. The policy recommendations presented in this report are aligned with the strategies proposed in the PRSP2 and the RDS and complement the government's National Contingency Plan for Food Security (*le Plan National de Contingence sur la Sécurité Alimentaire*) of November 2007. They are also designed to help the government to respond to recent and future high food world prices, which may contribute to higher domestic prices and reduce the availability of food aid to supplement Niger's domestic food supply.

What are main findings of the study? First, the data suggest that more than 50 percent of the population suffers from some form of food insecurity, with 22 percent of the population being suffering from extreme chronic food insecurity. Second, poor households are more exposed to shocks than richer ones, the poorest regions are the most vulnerable to food insecurity, and the most common coping mechanisms used by households often increase their vulnerability to future food insecurity. Third, since two-thirds of the population's daily caloric consumption comes from cereals, the production, availability, and market performance of cereals are crucial determinants of food security. Fourth, the evidence suggests that the targeting of food aid has been either non-existent or has focused on helping all households affected by drought rather than only the poor households affected by drought. Fifth, although the need to support poor and food-insecure households is substantial, Niger's current safety net programs are small, receive limited government funding, and are designed specifically for emergency food crises. Finally, given Niger's limited resources, high prevalence of poverty and periodic severe droughts and other

shocks as mentioned in program 9 of the RDS, an effective food security and social protection strategy is essential for Niger. This strategy needs to focus on: (i) increasing the efficiency and scope of safety net programs; (ii) promoting effective medium-term strategies and investments to increase food availability, access, and use; and (iii) improving emergency responses and the information system.

POVERTY AND FOOD INSECURITY

Niger is classified as one of the poorest countries in the world with substantial variations in poverty between regions. According to 2005 basic indicator household survey (QUIBB), about 62 percent of the population has incomes that place them below the poverty line. Since the economy is mainly centered around subsistence crops and livestock and given the country's high levels of population growth (3.3 percent per annum) and modest growth in real GDP, the incidence of poverty has remained constant since 1993. As in many other countries in Sub-Saharan Africa, poverty is more prevalent in rural areas (65.7 percent) than in urban areas (55.5 percent). Regional variations of poverty follow this pattern as well: predominantly rural regions such as Maradi (79.7 percent), Tillaberi (68.9 percent), and Dosso (67.3 percent) have the highest incidences of poverty, while in the predominantly urban region of Niamey, poverty incidence is only 27.1 percent.

Since grains account for a high share of total household expenditures and almost all households are net purchasers of grains, fluctuations in grain production and prices have a major impact on household food security. Between 61 and 64 percent of total household expenditures are spent on basic foodstuffs, and grains represent about 50 percent of total household spending. Grains (millet and sorghum) are also the dominant sources of caloric consumption, accounting for over 75 percent of food consumption. Moreover, although the majority of households are engaged in agricultural activities, almost all are net purchasers of food and are thus negatively affected by increases in food prices.

More than 50 percent of Niger's population is estimated to be chronically food insecure, with 22 percent of the total population suffering from extreme chronic food insecurity (per capita caloric consumption of less than 1,800 kilocalories per person per day). A variety of indicators demonstrate Niger's food insecurity, including low per capita food consumption, the limited dietary diversity of the population, the high prevalence of stunting in children under the age of 5, and high levels of micronutrient deficiencies (primarily iodine, iron, and Vitamin A). The causes of food security are complex, however, and result from the interaction between low food availability, poverty, the poor health and nutritional status of the population, and the country's considerable vulnerability to shocks. Although poverty rates are lower in urban areas, available household data for 2006 suggest that the percentage of the population with inadequate caloric consumption (less than 2,100 calories per day) is actually higher in urban areas (58 percent) in all regions than in rural areas (51 percent), with the exception of Dosso. The 2007 survey also confirms these findings, showing that the 50 percent of the population that are chronically food-insecure are composed of 30 percent who are suffering from extreme chronic food insecurity and 20 percent who are at risk.

There were substantial variations in food insecurity from region to region between 2005 and 2006. In 2005, Maradi, Dosso, and Niamey experienced the highest levels of extreme chronic and total food insecurity, with over 48 percent of the population in a state of extreme chronic food insecurity. In 2006, although extreme chronic food insecurity had been reduced, Agadez (with about 44 percent of its population being vulnerable to chronic food insecurity) had taken Maradi's place as the region with the highest level of food insecurity in the country because the level of food insecurity had fallen in Maradi.

In addition to chronic food insecurity, much of Niger's population suffers from seasonal and transitory food insecurity. Nutritional data show that much of the rural population suffers from seasonal food insecurity in the annual hungry season (*soudure*) between June

and September. Both rural and urban populations are also vulnerable to transitory food insecurity, defined as temporarily reduced food consumption after a shock.

Households have a limited range of strategies to cope with the effects of shocks on their incomes and food access, and some of these coping mechanisms make affected households more vulnerable to future food insecurity. Qualitative surveys have shown that the most common strategies used by Nigerien households to respond to natural shocks are migrating, selling off their assets or livestock, and borrowing money. In a 2005 household survey, food aid was the most common strategy used by households to mitigate the effects of such shocks as droughts and economic and health shocks. In the case of droughts, almost one in four households used food aid as their main coping strategy. Severe shocks leave households more vulnerable to future food insecurity with 60 percent of households remaining in debt after the 2005 food crises (Marinho and Gerard, 2008). In some cases, their coping strategies exacerbated the households' vulnerability.

The probability of receiving food aid is not correlated with poverty in rural areas. Among those affected by the drought in rural areas, only 72 percent of the poor received food aid compared to almost 80 percent of the non-poor. In urban areas, however, poor households affected by drought were more likely to receive food aid than non-poor households. These results suggest that the targeting of food aid has been either non-existent or focused on helping all of those affected by drought rather than only poor households affected by drought.

FOOD PRODUCTION AND MARKETS

In light of the importance of staple cereals (millet and sorghum) for producers' and consumers' welfare (over two-thirds of the daily caloric consumption of Nigeriens comes from cereals), the structure, conduct, and performance of food production and marketing has important implications for food security in the country.

Despite unfavorable agro-climatic conditions, agriculture and livestock-raising play a key role in the economy of Niger. Therefore, the prevalence and severity of the food security problem in Niger are directly related to the structure, conduct, and performance of food production and marketing. Overall, the agriculture sector employs more than 80 percent of the total population and contributes to approximately 40 percent of gross domestic product (GDP). Agriculture accounts for about 52 percent of rural output, with livestock contributing another 30 percent.

Niger relies mainly on its own domestic production of grains (dominated by millet and sorghum) for its cereal supply. The agriculture sector is characterized by subsistence farming, and the production of food crop is primarily based on rainfed agriculture. Over 80 percent of Niger's total cereal available for consumption comes from domestic production, primarily millet and sorghum. Millet is by far the dominant staple food crop (accounting for 76 percent of cereal production), followed by sorghum (accounting for 22 percent of cereal production). These crops are major determinants of both national food availability and rural household incomes.

Because of Niger's irregular rainfall, cereal production varies substantially, which makes rural households vulnerable to production shocks. Over the past two decades, the lowest cereal production years (1993, 1997, 2000, and 2004) coincided with natural shocks (droughts). Although national cereal production increased by 48 percent between 1985 and 2004 (from 1.8 million tons to 2.7 million tons), the increase was primarily due to the expansion of cultivated areas (from 4.3 million hectares to over 7 million hectares). Because rainfall is highly variable both geographically and from year to year, there are substantial regional and annual variations in cereal production. The average coefficients of variation for national millet and sorghum production are 0.20 and 0.35 respectively. Regionally, in terms of millet production, the regions of Maradi and Zinder (which account for approximately 40 percent of national millet production) have the lowest coefficients of variation, while the regions of Tillaberi and Tahoua have the highest, suggesting that rural households in the

latter regions are exposed to higher production risk than households in other areas of the country. In addition, the magnitude of production shocks varies quite substantially between regions.

Given the strong intra-annual variation in staple food crop production, total food availability in Niger depends strongly on commercial imports (specifically supply and demand conditions in Nigeria), while food aid does not play an important role. Data on cereal imports and exports in Niger are highly unreliable due in part to the large volume of informal trade that occurs between Niger and its neighbors (Benin, Burkina Faso, Chad, Mali, and Nigeria). Therefore, unofficial net imports of sorghum and millet from Nigeria are likely to be much larger in most years than is shown by the official records of imports. Estimates of these imports vary widely by year, but the analysis of the annual supply, demand, and prices suggests that millet imports may have been as high as 200,000 tons in 2004, equivalent to about 10 percent of total net millet supply. Moreover, since Nigeria produces much higher levels of millet, sorghum, and maize than Niger, the supply and demand conditions in Nigeria, especially in the northern regions, have a major influence on prices and availability in Niger. In comparison with unofficial imports, food aid inflows are small, accounting for less than 20 percent of total cereal imports and only about 1 percent of total net cereal availability.

The role played by the Government of Niger in cereal production and marketing has significantly reduced since the 1990s, and food prices are now determined by market forces. These reforms have had important implications for the functioning of Niger's agro-food sector, particularly in terms of pricing, marketing, and agricultural development and investment. With the cereal market becoming liberalized, the role of the *Office des Produits Vivriers au Niger* (OPVN), established in 1984 to manage the purchase and sales of staple cereals (millet and sorghum), has been reduced to monitoring the food security situation within the country and to managing the country's strategic grain reserves. As a result, during 2000 and 2004, the OPVN was responsible for distributing subsidized food to the

population, including vulnerable groups, while domestic cereal prices are now influenced by a host of factors, such as domestic supply and demand, commercial imports, import taxes and tariffs, regional trade patterns, and market structure. However, depending on the extent of domestic cereal production in a particular year, the government sometimes regulates trade flows by limiting either exports or imports of specific commodities.

Although grain markets in Niger are well integrated in general, this varies both over time and among regions. Staple food crop markets in Niger are somewhat integrated, with an average correlation coefficient of 0.55 for all markets between 1996 and 2006.

Nevertheless, the degree of domestic market integration varies both over time and across among regions, with higher levels of integration during low production years. The degree of integration between markets in Niger and those in its border countries (Benin, Burkina Faso, Chad, and Nigeria) follow the same pattern as the domestic markets. Market price integration between Chad and Niger is minor, however, as is the degree of integration between Burkina Faso and Niger. The highest degree of integration occurs between Niger, Benin, and Nigeria, with a correlation coefficient of grain prices averaging 0.65. There is also evidence of strong market integration between three-quarters of the major markets in southern Niger and markets just across the border in Malanville (in Benin) and Jibia, Illela, and Mai-Adua (in Nigeria).

THE 2005 FOOD CRISIS

The food crisis in Niger in 2005 provided national policymakers and the international community with important lessons. Estimates of national food production in late 2004 that suggested only a modest decline relative to medium-term trends gave little cause for concern. In one sense, the major cause of the crisis was the extremely low level of household income, which leaves many households on the brink of serious malnutrition even in years of normal harvests and prices. The additional shocks in 2005 that tipped the balance from risk to reality of a food crisis were:

- Losses in food production and incomes for those farmers whose late 2004 harvests were affected by drought and locusts; and
- A sharp rise in food prices (related to even more dramatic price increases in some of Nigeria's markets beginning in mid-2004) that reduced household access to food for all net purchasers. Market analysis suggests that Nigeria's production shortfall and high prices likely led to a decline in net imports of millet that significantly worsened the effects of Niger's production shortfall.

The government's response to the 2005 food crisis included various mechanisms to support households affected by income losses and production shocks. The government response, with support from non-governmental agencies and international organizations, consisted mainly of a range of emergency schemes: (i) food aid for direct emergency distribution; (ii) food-for-work (FFW) programs; (iii) the sale of approximately 40,000 tons of cereals at subsidized prices; and (iv) the provision of cash-for-work" (CFW) programs to raise the purchasing power of affected households. These programs relied upon both imported and local food aid, with some local purchases occurring within Niger (in Niamey and Maradi) and in northern Nigeria. In spite of these efforts, the gross mortality rate reached 1.5 deaths per 10,000 per day in some of the worst-affected regions, with child mortality rates of 4.1 deaths per 10,000 per day, levels well above international thresholds for humanitarian crises.

The criteria for targeting vulnerable regions that might need emergency programs were unclear, and there is still no accurate list identifying those regions that were most severely affected by the 2005 food crisis. Due to the lack of explicit and transparent criteria (or thresholds) for determining what constitutes a food crisis and for identifying vulnerable regions, the areas that were most severely affected by the 2005 crisis may not have been reached by any emergency effort. A list of vulnerable villages was produced by the

Government in May 2005, but the list did not align with qualitative and quantitative evidence gathered by international and non-governmental organizations.

To improve the functioning of its emergency response interventions, the Government of Niger has developed a National Contingency Plan for Food Security with the participation of a variety of governmental and non-governmental actors. Developed in 2007, the plan outlines the strategic priorities (including early warning indicators such as a cereal deficit, high food prices, and severe malnutrition) for the government and its development partners in preventing and managing food crises in the country. The overall objective of the plan is to minimize the impact of food crises by ensuring households' access to staple foods and protecting their assets, mainly via the national security stock and emergency cash resources (in other words, general food distribution, FFW programs, CFW programs, subsidized sales of staples, and seed distribution). However, there is still a lack of agreement among the government and its partners regarding which are the most effective safety net interventions in Niger. The list of response interventions outlined by the National Contingency Plan includes most of the same instruments that have been used in the past few years, with an increased emphasis on CFW rather than FFW and cereal banks. However there is no good evidence showing which interventions have been most effective. The general information from the 1990s show that cereal banks have not been sustainable. CFW programs, which are usually preferred to FFW, are fairly new interventions that have not been fully evaluated in Niger.

POLICY OPTIONS TO RESPOND TO FOOD INSECURITY

International experience has shown that social safety net programs play a very important role in reducing and alleviating chronic poverty and in helping the poorest people after natural catastrophes. In this study, social safety nets (safety nets for short) refer to non-contributory transfer programs targeted to the poor and to individuals vulnerable to poverty and to shocks. These programs have the simultaneous goals of: (i) providing

assistance to poor households to help them to rise out of poverty and to cope with the impact of shocks and (ii) reducing the negative effects of globalization, macroeconomic shocks, and structural changes, thus contributing to more sustainable growth.¹ These safety nets consist of programs such as:

- Cash transfers or food coupons, targeted either by category or by income level (examples include family allowances or social pensions).
- In-kind transfers, school meal programs, or supplements designed for mothers and children and also less frequently the distribution of ready-to-eat meals, school supplies, or uniforms.
- General price subsidies, often for food or energy, targeted to households.
- Employment through labor-intensive public works programs, sometimes called “workfare” (transfers that are conditional on recipients providing their labor for a specified period of time).
- Cash or in-kind transfers to poor households subject to the recipients meeting certain educational or health conditions.
- Exemptions from paying fees for basic services, health services, education, public services, or transportation.

Given Niger’s limited resources, high poverty incidence, and periodic climatic shocks, an effective food security and social protection strategy is essential. Such a strategy should include three key components: (i) increasing the efficiency and scope of safety net

¹ See Grosh et al (2008) for a complete description of social safety nets.

programs; (ii) promoting effective medium-term strategies and investments to increase food availability and access and to improve health and sanitation practices; and (iii) strengthening the emergency response and information systems. Avoiding future food crises will also require a greater recognition of the importance of regional markets (particularly those in Nigeria) in influencing market prices, food imports (and exports), and, ultimately, household food consumption in Niger. Finally, any social protection strategy, including safety nets, will need to be consistent with the country's overall strategy for growth and poverty reduction, which represents the ultimate solution for food insecurity and the poor health and nutritional outcomes associated with both poverty and household food insecurity. The government in close collaboration with its development partners has developed an action plan containing the policy measures that will need to be implemented in short and medium terms (see the policy action plan for an effective food security and strategy matrix on page. xxiv below).

Invest in Safety Nets to Protect Poor and Vulnerable People

Currently, only a small portion of the government's total budget is allocated to safety net programs, ranging from 1 to 5 percent of total expenditures between 2001 and 2006. During this period, almost 70 percent of safety net expenditures were focused on food crises, with the Food Crisis Unit (CCA)² being largely responsible for coordinating these programs and Niger's Food Production Office (OPVN) and a variety of NGOs serving as the main implementing agencies.

Safety nets are needed even in years of normal harvests to prevent vulnerable and poor people from falling deeper into poverty and debt. The main challenge is to design an effective safety net system and provide adequate funding to ensure its sustainability. The development of an effective safety net program could include the following steps:

² Unit within the National Framework for the Prevention and Management of Food Crisis

- *Developing a comprehensive safety nets system.* The mechanisms for preventing and responding to food crises as currently implemented by the National Mechanism for the Prevention and Management of Food Crises in Niger (DNP-GCA) constitute only one part of a full-scale safety net system. Consequently, to ensure that Niger has a safety net system to protect households suffering from chronic, seasonal and transitory food insecurity, it will be necessary to: (i) formulate a safety net program that is consistent with the aims of the PRSP2 and RDS; and (ii) ensure coordination between the government and its technical and financial partners (TFPs). This in turn will require that safety net programs are included in the government budget as well as long-term financial commitments from the TFPs.

- *Increasing the effectiveness of the current safety net system.* This would require: (i) assessing the effectiveness of existing programs labor-intensive public works programs such as FFW and CFW programs, free distribution of foodstuffs, subsidized food sales, cereal banks, and school feeding programs; (ii) reviewing the existing targeting system to determine how best to reach chronically poor people; and (iii) improving the current program monitoring system. Within this framework, to ensure that the safety net system is effective (in crisis and normal periods) it should be possible: (i) to guarantee that the FFW and CFW programs are well-organized and productive; (ii) to limit the amount of free distribution of food as well as subsidized sales and pay specific attention to location and timing of sales; (iii) to ensure that the purchase of local foodstuffs for food aid programs is well planned; and (iv) to ensure that there are transparent and efficient targeting procedures for selecting the regions and households to benefit from the program.

- *Introducing new safety nets programs.* Once the vulnerable groups are identified and the evaluation of the existing programs is completed, it will be necessary to pilot certain types of programs with transparent eligibility criteria, coverage, and cost, including cash payments and conditional cash transfers (in other words, transfers

that are conditional on recipients ensuring that their children attend school and/or make regular use of health services).

Introduce Medium-term Policies and Investments to Increase the Availability of and Access to Food and Improve Health and Sanitation Practices

Medium- and long-term policies are also needed to reduce household vulnerability to production shocks, raise the incomes of the poor, and enhance market efficiency. Actions aimed at producing these outcomes are already integrated in axis 1 of the RDS as well as in the Accelerated Development Strategy and the Poverty Reduction Strategy (PRSP2). In this context, the government might consider:

- *Increasing the availability of staple food products.* This could be achieved by increasing agricultural productivity and the efficiency of agriculture markets as well as by reducing the production risks faced by farmers. Efficient domestic agriculture production could be promoted by investing in agricultural research and extension, investing in road construction and maintenance, increasing market infrastructure (such as storage facilities), and increasing access to water for agriculture by investing in irrigation and water retention.
- *Ensuring that commercial policies promote the development of cereals markets.* In this context, it will be necessary to: (i) reduce price risks associated with farm products to increase incentives for production and (ii) reduce the variability of rural incomes by promoting farmers' groups. In addition it is crucial to improve the flow of market information on prices and volumes of production and market supplies. To ensure that commercial policies do not impede the development of cereals markets, it will be necessary to promote market efficiency and transparent policies on food aid flows, imports, and releases of food stocks.

- *Expanding access to food for the poor (in rural and urban areas).* In this context, it will be important to support various income-generating activities for households (for example, by providing micro-credit through local NGOs and investing in education and skills development to increase labor productivity).
- *Improving health and sanitation practices.* This will require a focus on the overall health and sanitation environment, particularly in the poorest households.

Strengthen the Emergency Response and Information Systems

Despite recent progress, further steps are needed to improve the functioning of the early warning and emergency response systems as well the existing information system. This might include:

- *Revising and implementing the government's National Contingency Plan for Food Security and setting up a comprehensive monitoring system for food procurement, distribution, and stocks.*
- *Improving the information system and the emergency program by:* (i) monitoring international price movements, particularly in Nigeria, particularly as, depending on the price incentives for trade between major markets in Niger and northern Nigeria, net imports of millet could vary by about 200,000 tons (about 10 percent of millet availability in a normal year); (ii) improving the dissemination of information from the early warning system to decision-makers and other actors; and (iii) strengthening the analytical capacities of the key government institutions which are part of the disaster risk management and early warning systems (CCA, SAP, SIMA, CIC).

- *Using current and new safety nets programs as an emergency response.* In particular, it is necessary to strengthen efficient safety nets programs and to define specific targeting mechanisms for use in emergencies.

NIGER: POLICY ACTION PLAN FOR AN EFFECTIVE FOOD SECURITY AND SOCIAL PROTECTION STRATEGY MATRIX

Invest in Safety Nets to Protect Poor and Vulnerable People

Policy Recommendations	Actions and Timeframe		Actors	Monitoring Indicators
	2008/2009	2009/2011		
<p><i>Establish a general safety net system for households suffering from food insecurity (chronic as well as seasonal and transitory).</i></p> <p><i>(Cf. PRSP, RDS)</i></p>	<ul style="list-style-type: none"> Develop a comprehensive safety nets program aligned with the PRSP2 and RDS. Ensure coordination between the government and its technical and financial partners (TFPs). 	<ul style="list-style-type: none"> Identify sources of sustainable financing (before May 2009). 	<ul style="list-style-type: none"> Steering committee (CCA, INS, SAP, SIMA). Expanded national mechanism (Presidency, Prime Ministry RDS, Education, Health, INS, MEF, TFPs, civil society). 	<ul style="list-style-type: none"> Program Document. Committee Creation Decrees.
<p><i>Strengthen the effectiveness of current safety nets</i></p> <ul style="list-style-type: none"> FFW and CFW. Free distribution of food. Subsidized food sales on a limited scale. Cereal bank. School feeding. 	<ul style="list-style-type: none"> Assess the effectiveness of current programs (during normal and crisis situations) - Quick survey and targeted household surveys. Develop a targeting system for populations with chronic food insecurity. Improve stocks monitoring and information systems. 	<ul style="list-style-type: none"> Decide which programs to retain. Adjust implementation mechanisms for the retained programs (targeting, distribution, etc.). Revise the execution structure for the programs (creation of a rural works agency). Implement a program monitoring system (resources and beneficiaries). 	<ul style="list-style-type: none"> Steering committee to prepare the TOR for program assessment (CCA, INS, SAP, SIMA, etc.). Monitoring (CCA, OPVN, technical ministries). Technical ministries for execution (Rural Works Agency). 	<ul style="list-style-type: none"> Assessment reports. Criteria for targeting. Monitoring indicators.
<p><i>Identify new safety net programs</i></p> <ul style="list-style-type: none"> Cash transfers (conditional and non-conditional). 	<ul style="list-style-type: none"> Develop pilot programs (refine criteria for targeting, period, coverage, cost, etc.). 	<ul style="list-style-type: none"> Test pilot programs and monitor and assess them. 	<ul style="list-style-type: none"> Technical ministries. 	<ul style="list-style-type: none"> Implementation of pilot programs.

Introduce Medium-term Policies and Investments to Increase the Availability of and Access to Food and Improve Health and Sanitation Practices^{a/}

Policy Recommendations	Actions and Time Frame		Actors	Monitoring indicators
	2008/2009	2009/2011		
<p><i>Increase the availability of staple food products</i></p> <ul style="list-style-type: none"> • Increase production and agricultural productivity. • Increase efficiency of domestic agricultural markets. • Reduce production risks for farmers. 	<ul style="list-style-type: none"> • Support agricultural production (especially farming) and increase productivity (seeds, fertilizers). • Study the possibility for expanding warrantage operations (inventory credit systems). • Study the possibility of introducing agricultural insurance. • Improve information systems on pricing and production volumes and market supplies. • Develop and adopt a strategy for cereal banks. 	<ul style="list-style-type: none"> • Invest in agricultural research and its expansion. • Implement an advisory support mechanism integrated into rural development. • Invest in irrigation and water retention (for example, verify dams, if necessary). • Promote access to agricultural credit. • Provide support for agricultural equipment. • Provide support for processing. • Provide regular access for producers to quality inputs at a competitive cost. • Improve market infrastructure by investing in storage facilities in major markets and in road construction and maintenance. • Promote the development of farmer associations and the private sector in agricultural industries for storage and marketing. 	<ul style="list-style-type: none"> • RDS, TFPs. • Technical ministries. 	<ul style="list-style-type: none"> • Implementation of agricultural and commercial policies that have been passed. • Study on warrantage and insurance. • Policy considered by the RDS.

<i>Ensure that commercial policies promote the development of the cereals market.</i>	<ul style="list-style-type: none"> • Ensure that the cereal market regulatory mechanism is applied. • Evaluate local purchasing programs and purchase locally where production and market conditions allow. 	<ul style="list-style-type: none"> • Promote transparent consultations and information exchanges between the government and private sector merchants. 	<ul style="list-style-type: none"> • Ministry of Commerce (application of ECOWAS and WAEMU texts). • RDS. 	<ul style="list-style-type: none"> • Implementation of commercial policies. • Consultation with private actors.
<i>Expand access to food for the poor in rural and urban areas (Cf. PRSP2, RDS).</i>		<ul style="list-style-type: none"> • Increase household income. • Expand micro credit programs. • Invest in human capital. • Promote access to agricultural credits for households. 	<ul style="list-style-type: none"> • PRSP2, TFPs. 	<ul style="list-style-type: none"> • Volume of loans granted to poor people.
<i>Improve health and sanitation practices. (Cf. PRSP2).</i>	<ul style="list-style-type: none"> • Improve food distribution programs and expand them to pregnant and nursing women, and infants, especially in poor households. 	<ul style="list-style-type: none"> • Continue to invest and promote general health and sanitation programs. 	<ul style="list-style-type: none"> • Ministry of Health, Ministry of Water, TFPs. 	<ul style="list-style-type: none"> • Implementation of a national nutrition and health protocol. • Improvement of health and sanitation services.

a/ The medium-term actions being proposed do not constitute a new program but represent a series of targeted actions integrated into the government's development efforts that are in progress. They complement those that the government and its partners have already agreed to under axis no. 1 of the RDS as well as in the Accelerated Development Strategy and the Poverty Reduction Strategy (PRSP2). They must also be coordinated with the activities planned by the *Comité National sur la Hausse des prix* (National Committee on Price Increases), for which an interagency support mission led by the FAO was conducted in October 2008.

Strengthen the Emergency Response and Information Systems

Policy Recommendations	Actions and Time Frame		Actors	Monitoring indicators
	2008/2009	2009/2011		
<i>Revise and update the Government's National Contingency Plan for Food Security.</i>	<ul style="list-style-type: none"> • Improve information and monitoring of emergency programs. • Improve monitoring and information on food supply. 	<ul style="list-style-type: none"> • Improve the crisis activation indicators defined in the national emergency plan. 	<ul style="list-style-type: none"> • SAP and PTF. • CCA. • OPVN. 	<ul style="list-style-type: none"> • Revised Plan.
<i>Improve the information and early warning systems.</i>	<ul style="list-style-type: none"> • Take into consideration monitoring indicators for trans-border markets (cereal prices, Naira exchange rate, information parity index, volume, flow, etc.). • Improve dissemination of early warning information to decision makers and other actors. • Distribute consensus information and lobby through the CIC. 	<ul style="list-style-type: none"> • Strengthen analysis capacity of key government institutions (CCA, SAP, SIMA, CIC). 	<ul style="list-style-type: none"> • SAP, SIMA, SIMB. • CCA. • TFPs. • Technical ministries. • CIC. 	<ul style="list-style-type: none"> • Periodic bulletin. • Survey reports.
<i>Use current and new safety net programs for emergency response.</i>	<ul style="list-style-type: none"> • Decide which safety nets to be strengthened (expanded in terms of space and coverage for emergencies) and finance them. • Define specific targeting mechanisms for emergencies. 	<ul style="list-style-type: none"> • Operationalize intervention mechanisms. 	<ul style="list-style-type: none"> • DNP-GCA. • Technical ministries. • Rural Works Agency. 	<ul style="list-style-type: none"> • Report identifying intervention mechanisms. • Funds allocated for permanent and transitory programs.

CHAPTER 1: INTRODUCTION

BACKGROUND AND MOTIVATION

1. ***Niger is a very poor country with a limited natural and human resource base and high population growth.*** Per capita gross national income (GNI) was around US\$240 in 2005. Also, according to the United Nations Development Program (UNDP)'s Human Development Index of 2005, the country was ranked 174th out of 177 countries. Poverty remains widespread, and social indicators compare poorly to Sub-Saharan African averages as presented in Table 1. The share of the population living in poverty, estimated at 62 percent in 2005, has been constant since the early 1990s (63 percent in 1993), mainly due to a lack of resources, low agricultural productivity, and high population growth. In addition, Niger is frequently hit by adverse shocks such as droughts, insect pests that damage crops, and surges in prices of imported food.

Table 1: Socio Economic Indicators, 2005

	Sub-Saharan African Countries	Niger
GNI per capita, Atlas method (current US\$)	746	240
Population growth (annual %)	2.3	3.3
Life expectancy at birth, total (years)	47	45
Fertility rate (births per woman)	5.3	7.7
Infant mortality rate (per 1,000 live births)	96	150
Access to improved water source (% of total pop.)	56	46
Access to improved sanitation (% of total pop.)	53	43
Gross primary enrollment, total (% of age group)	92	47
Adult literacy, total (% of ages 15 and older)	61	29

Source: The little data Book 2007, The World Bank

2. ***Niger’s vulnerability to several exogenous factors, as well as its low level of socioeconomic development, result in chronic food insecurity.*** Past experience has shown that Niger’s economy has been affected by the high variability of rainfall, terms of trade shocks, and the volatility of aid flows. Evidence shows that these shocks result in lower growth performance, severely affect human development, and cause chronic food security in Niger. Food insecurity is aggravated by high incidences of rural poverty, which translate at the household level into low purchasing power, a lack of access to food by vulnerable groups, rampant malnutrition, and limited access to health facilities. Droughts often result in increases in the prices of millet, sorghum, and other staple foods, and dramatic decreases in the prices of livestock (which constitute the “savings accounts” of agro-pastoralists and pastoralists).³ Since there is no safety net scheme in place in Niger, the rural population often migrates out of the most vulnerable zones during these difficult times.

3. ***Reducing vulnerability and ensuring food and nutrition security is an overarching priority for the government.*** Food aid has been an important resource for the government and is widely considered to be integral to the provision of safety net interventions, especially emergency responses. In this framework, since 1998, Niger’s government and major food aid donors have managed a National Mechanism for the Prevention and Management of Food Crises (*Dispositif National de Prévention et de Gestion des Crises Alimentaires* or DNP-GCA) in Niger with the mandate to: (i) help the government to build up cereal and financial reserves for food aid during crises and (ii) take actions to support the population during periods of food crisis. Moreover, the government’s Rural Development Strategy (RDS)⁴ action plan has set out the strategic vision, policies, and institutional framework to address food security issues. Specifically, the RDS proposes that the government: (i) continue its ongoing efforts to improve the performance of the existing national system for crisis prevention and mitigation and (ii) adopt a multi-sectoral approach that focuses on both increasing agricultural production and reducing the country’s

³ The most recent drought in 2005 led to food shortages for millions of Nigeriens.

⁴ Program 9 of the RDS is focused on “reducing the vulnerability of households.”

vulnerability to food crises. In this context, the existing national system for crisis prevention and mitigation, created in 1989, has been improved over time to better target vulnerable zones and households. Moreover, in light of lessons learned from the 2005 crisis, the government is pursuing efforts to improve the performance of the system by: (i) focusing the monitoring on food accessibility (monitoring of purchasing power and anticipation of market behavior and household strategies); (ii) integrating the nutrition and health dimensions of food insecurity into the vulnerability analysis; (iii) improving the targeting of beneficiaries and the estimation of their needs; (iv) strengthening the role of the communes in food crisis management; and (v) developing a communication strategy with the media. Moreover, in collaboration with donors, the government has prepared and validated an evaluation study on the national system for food crisis management and prevention, along with an action plan. This action plan aims to establish a better emergency response mechanism to food crises in Niger, but it is not expected to solve the structural issues that cause or exacerbate food crises.

STRUCTURE OF THE REPORT

4. In alignment with government thinking, this report aims to take stock of both existing information and new analysis on vulnerability and provide an analysis of the food security situation in the country, draw lessons from the experience of the 2005 food crisis, and discuss policy options for increasing food security. Specifically, this report:

- Presents a detailed analysis of household food security in Niger, including the main sources of risks, household vulnerability to food insecurity, and their coping mechanisms.
- Provides an overview of agriculture production, food availability, and access to grain markets, highlighting the role played by private unofficial trade with neighboring countries.

- Reviews the experience of the food and nutrition crisis in 2005 and gives an overview of the existing national food security system and safety nets for crisis prevention and mitigation.
- Suggests policy options, aligned with the government's Development Strategy and the Poverty Reduction Strategy (PRSP2) and the Rural Development Strategy (RDS), for: (i) introducing a safety net to protect poor and vulnerable groups; (ii) increasing the efficiency of medium-term policies and investments to increase food availability and accessibility; and (iii) strengthening the existing emergency response system.

5. ***Given the multi-sectoral aspects of the food security, the report explores ways to enhance food security and prevent reductions in food security.*** Any comprehensive food security strategy needs to find ways to enhance food security by increasing agricultural productivity as well as by adopting policies related to education, health and nutrition, and population growth that are crucial for diversifying and increasing household incomes (and thereby their access to food). Since safety nets are essential for reducing chronic food insecurity, the report discusses the food security strategy in the context of Niger's social protection interventions and in the context of other existing and ongoing analytical works (on, for example, irrigation, agriculture, population, and health).

6. ***This report relies on several primary and secondary sources of information conducted between 2004 and 2008, including studies on risks, shocks, and vulnerability to food insecurity in Niger.*** The primary sources include surveys of governmental and non-governmental interventions implemented during and after the food crisis by the National Statistical Office (INS), as well as a cereal market survey conducted by four non-governmental organizations in Niger (Catholic Relief Services, CARE International, Helen Keller International, and World Vision International). The INS has completed several consumption and expenditures surveys, including: (i) an extended national survey (*Questionnaire sur les Indicateurs de Base et de Bien-être*, or QUIBB) in May 2005 and (ii) a

survey of food security in households (*Enquête sur la Conjoncture et la Vulnérabilité Alimentaire des Ménages*⁵, or ECVAM) in May 2006. These two surveys have been collected at different points in time, one during the crises of 2004-5 and the other after a good harvest in November 2006. They provided the basis for the analysis of poverty and household food insecurity, which was conducted by the INS in collaboration with the World Bank.⁶ Secondary sources of information include the series of poverty and vulnerability reports prepared by various international partners (including the World Food Programme and the World Bank) and various consultants between 2006 and 2008. These studies provide detailed information on the food security situation in Niger, on poverty and consumption, cereal production and marketing, health and nutrition, and the types of shocks that affect the country.

7. The rest of this study is organized as follows: Chapter 2 presents a profile of the poverty and food security situation in Niger, including the sources of risk and vulnerability to food crises. Chapter 3 provides an overview of the agricultural production and marketing system in the country, including information on trade flows and food aid. Chapter 4 summarizes the 2005 food crisis, its causes, and the responses of the Government of Niger, non-governmental and international organizations prior to, during, and after the food crisis. Chapter 5 outlines policy recommendations for protecting households who are food-insecure and for responding to future food crises.

⁵ National Institute of Statistics (May 2006).

⁶ Note that making comparisons between the two surveys is complicated by the difference in the structure of the consumption modules in the two surveys. However, they do illustrate the consumption pattern between the period of crises in 2005 and after a good harvest in fall 2006.

CHAPTER 2: POVERTY AND FOOD INSECURITY

According to the available information, more than 50 percent of Niger's population suffers from some form of food insecurity, including chronic, seasonal, and transitory food insecurity (defined as reduced access to food after a shock). This is due to the complex interaction between low food availability, limited economic access, the poor health and nutritional status of the population, and the country's high susceptibility to shocks. According to available household surveys, over two-thirds of the population's daily caloric consumption comes from cereals, with regional variations in consumption levels mirroring the geographical distribution of poverty. Nutritional outcomes are consistent with the prevalence of seasonal and transitory food security. Strategies for coping with the various risks and shocks affecting urban and rural households include receiving food aid, reducing the number of meals consumed per day, migrating, and selling household assets or livestock. Overall, poor households are more exposed to shocks, the poorest regions are the most vulnerable to food insecurity, and coping mechanisms make households more vulnerable to future food insecurity.

8. ***More than 50 percent of Niger's population is estimated to suffer from some form of food insecurity.*** Regardless of what indicators are used, survey-based evidence consistently shows that much of Niger's population suffers from widespread chronic, seasonal, and transitory food insecurity. This is due to the complex interaction between low food availability, poverty and limited economic access to food, the poor health and nutritional status of the population, and the country's high vulnerability to shocks due to its economic dependency on subsistence crops and livestock. Per capita food consumption levels are low for about half of the households in Niger, there is limited dietary diversity for much of the population, the prevalence of stunting in children under the age of 5 is high, and micronutrient deficiencies are widespread (see Box 1).

Box 1: How to Measure Food Security?

International organizations (such as the United Nations, the Food and Agricultural Organization, the World Food Programme, and the World Bank) define food security as “access by all people at all times to sufficient food for an active, healthy life” (World Bank, 1986). Food insecurity is therefore defined as the absence of one or all of the conditions required to live an active, healthy life and can be classified into one of three categories: (i) chronic food insecurity, defined as having insufficient access to sufficient food on a continuous basis; (ii) seasonal food insecurity, or having insufficient access to food on a cyclical basis; and (iii) transitory food insecurity, whereby households do not have access to sufficient food following a shock, such as a man-made or natural disaster.

Although most definitions of food security used by governmental, non-governmental, and international organizations are closely related to the World Bank’s definition, measurability remains problematic. Maxwell and Frankenberger (1992) highlighted the diversity of the points of view regarding food security and concluded that there is no “gold standard” for measuring food security (Maxwell et al, 1999). The most common approaches used include analyzing poverty, consumption patterns such as daily caloric intake, the nutritional status of children under the age of 5 (stunting, wasting, and under-nutrition), and micronutrient deficiencies. Another approach, presented later in this chapter, uses risk and vulnerability analysis to relate the main sources of risk and vulnerability to household-level food security indicators, distinguishing between chronic food insecurity and vulnerability to food insecurity.

CHRONIC AND SEASONAL FOOD INSECURITY

Links between Food Insecurity and Poverty

Table 2: Poverty Status in Niger by Geographic Area

Region	Incidence	Depth	Severity
Agadez	45.9	16.1	8.8
Dosso	67.3	28.8	15.3
Maradi	79.7	35.1	19.0
Tahoua	45.9	14.5	6.2
Tillaberi	68.9	26.8	13.9
Zinder-Diffa	63.1	23.0	23.0
Niamey	27.1	7.2	7.2
National	62.1	24.1	12.3

Source: 2005 QUIBB (INS, 2005).

9. ***All methods used for measuring poverty – including the monetary approach, the living conditions approach, and the subjective approach – show that the incidence of poverty remains high in Niger.***^{7/8} With average per capita GDP of US\$240 in 2005, Niger is classified as the fourth poorest country in the world and is the lowest ranked on the UN's Human Development Index (HDI).⁹ According to the Survey on the Satisfaction of Basic Needs (DSBE) in 2004, 70 percent of households in Niger cannot meet their basic needs for food, income, employment, farm equipment, land, education, health, and drinking water. These results are further confirmed by the monetary evaluation of poverty (using data from the 2005 QUIBB), which shows that the proportion of the population living below the poverty line was 62.1 percent in 2005¹⁰ (see Table 2). In fact, the prevalence of poverty in Niger has remained essentially constant since 1993 (in 1993 the incidence of poverty was 64 percent compared to 62 percent in 2005). Furthermore, according to a participatory poverty survey (the 2006/07 EPP2), approximately 66 percent of households in Niger consider themselves to be poor, and 20 percent consider themselves to be extremely poor. Updated estimates and further analysis of poverty trends are expected after the completion of the ongoing Household Budget Survey in 2007/08. Moreover, food expenditure is low and accounts for a significant amount of total household expenditures leading to high levels of food insecurity.

⁷ Three poverty surveys have been conducted in Niger since 2000: the Survey on the Satisfaction of Basic Needs (DSBE) in 2004; the Survey on the Combined Questionnaire of Basic Welfare Indicators (QUIBB) in 2005; and the second participatory survey on poverty (EPP2) in 2005.

⁸ The incidence of poverty measures the percentage of individuals or households whose consumer spending is below the monetary poverty line. The poverty line corresponds to a minimum annual level of consumer spending for an individual or household, while the depth of poverty measures the average percentage gap between the level of well-being of poor households and the poverty line. Poverty depth is used to estimate the minimum amount of additional resources that would be needed to raise poor households up to the monetary poverty line. The severity of poverty measures the average gap between consumption by the poor and the poverty line. It gives relative proportions of poor people in various groups.

⁹ While there is no single and universal definition of poverty, poverty is often defined as "a state of individual or collective destitution which places man in a situation of shortage or lack of essential needs." This definition (World Bank (2000)) reflects the lack of adequate income to satisfy basic needs in the form of feeding, health, education, drinking water, and decent housing, which results in a lack of opportunities to participate in social and economic life and in an increase in the vulnerability of poor populations to shocks of various types.

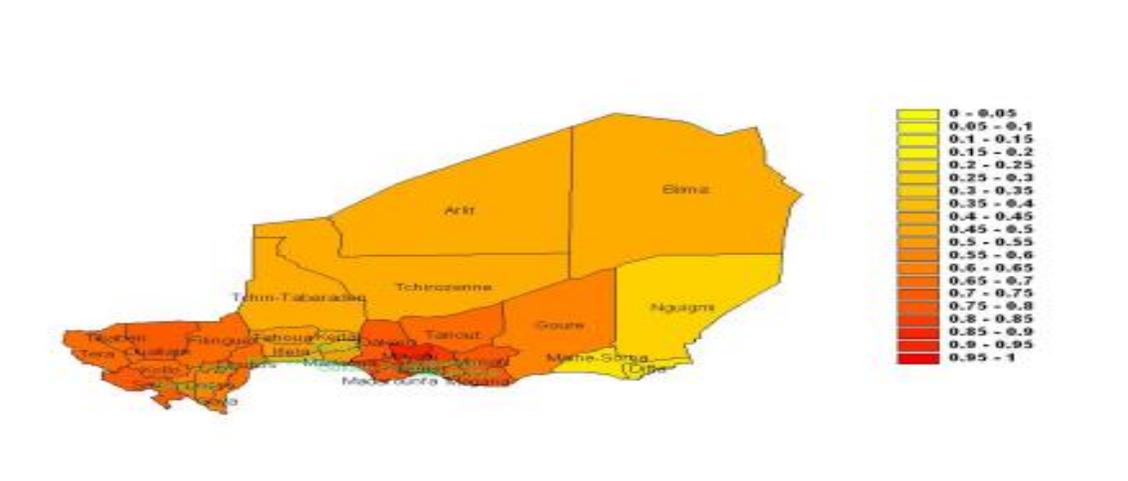
¹⁰ According to World Bank (2005), the poverty thresholds for Niger in 2005 were 144,750 FCFA (equivalent to about US\$175) per capita and per year for urban areas and 105,827 FCFA (equivalent to about US\$110) for rural areas.

Poverty incidence varies by region though it is higher on average in rural areas than in urban areas. The prevalence of poverty and extreme poverty is higher in rural areas, with 65.7 percent of the population in rural areas living below the poverty line compared with 55.5 percent in urban areas. Regional variations in poverty are also significant as can be seen in Table 2. Niger is divided into eight administrative regions, Agadez, Diffa, Dosso, Maradi, Niamey, Tahoua, Tillaberi, and Zinder, with each region having several departments. The incidence of poverty is highest in the Maradi (79.7 percent), Tillaberi (68.9 percent), and Dosso (67.3 percent) regions, whereas it is only 27.1 percent in the capital Niamey. Likewise, the depth of poverty, which indicates whether families are living in abject poverty or just below the poverty line, also confirms higher levels of poverty in the same three regions: Maradi, Tillaberi, and Dosso.

10. **Variations in poverty rates are even greater at the department level (see Figure 1).**¹¹ Poverty is most widespread in Mayahi (Maradi) department, where almost 90 percent of the population is living below the poverty line. Departments located in the regions of Maradi, Tillaberi, Dosso, and Zinder also have very high incidences of poverty, with more than 50 percent of the population living below the poverty line. Other regions (Tahoua and Agadez) have localized pockets of poverty, but on average poverty rates range from 35 to 50 percent.

¹¹ See World Bank (2006) and INS (2005).

Figure 1: Poverty Rates in Niger by Department, 2005



11. ***As in other countries, poverty in Niger is strongly correlated with a variety of household characteristics, such as household size and the gender, educational level, and economic status of the head of the household.*** According to the 2005 QUIBB survey, larger households are poorer than smaller households, as are households with more rather than fewer children. All else being equal, female-headed households are poorer than male-headed households, as are households in which the household head did not complete primary education compared with those heads with a higher level of education. The household's source of income also has a major impact on per capita consumption and the household's probability of being poor. In general, households in Niger rely on a limited number of income-generating activities. According to the 2006 ECVAM survey, 20 percent of households generate income from a single activity (such as agriculture, trade, or livestock).¹² Moreover, approximately 65 percent of households whose head is self-employed are classified as poor, followed by those headed by unpaid apprentices (61.3 percent) and domestic servants (54.3 percent) (INS, 2005). By contrast, households with heads whose main source of income is a formal public sector salary job have a higher standard of living.

¹² More recent information confirms that 40 percent of the population generates 80 percent of their income from one activity (Marinho and Gerard, 2008).

Consumption Patterns

12. **Food accounts for over 60 percent of total household expenditures in Niger.**

According to the 2005 and 2006 household budget surveys, between 61 and 64 percent of total household expenditures were for basic foodstuffs. Among these expenditures, cereals (including millet and sorghum) represented approximately 50 percent of all spending.

13. ***Although the majority of households engage in some farming, almost all households are net purchasers of food.*** Over 60 percent of households rely in part on their own production to meet their consumption needs. Nevertheless, over 60 percent of households were net purchasers of millet in 2005. This implies that Nigerien households do not produce sufficient quantities to meet their consumption needs (see Table 3).

Table 3: Sources and level of household food consumption in 2005 and 2006

Commodity groups	Consuming households	Source of consumption		Quantity consumed per capita per day	Expenditure budget shares	Calorie shares
		Own Production	Net market Purchase			
	(%)	(%)	(%)	Grams	(%)	(%)
2005						
Millet	86.7	60.4	62.5	385.4	48.2	56.5
Sorghum	42.5	31.7	21.5	75.9	9.5	12.6
Other Cereals	79.2	10.2	77.0	209.3	21.3	16.7
Roots and Tubers	36.2	4.0	33.3	13.6	1.2	0.6
Nuts and pulses	56.3	23.2	40.0	21.5	2.7	2.7
Fruit Legume	83.7	18.9	79.9	101.2	.	1.4
Meat and fish	54.1	22.2	41.1	11.8	5.2	2.7
Milk, Eggs, Cheese	65.1	19.0	53.2	51.0	6.2	2.0
Oil	36.0	0.0	36.0	3.8	2.4	3.3
Sugar	65.2	0.0	65.2	9.6	3.3	1.3
2006						
Millet	81.8	57.8	26.3	346.7	46.1	42.0
Sorghum	39.2	27.1	13.3	107.5	8.0	13.0
Other Cereals	76.7	7.8	74.7	130.2	26.8	14.3
Roots and Tubers	14.3	0.1	14.3	12.2	1.9	1.4
Nuts and pulses	65.2	34.8	33.3	67.9	6.4	9.0
Fruit Legume				.	.	.
Meat and fish	52.1	4.5	50.3	53.8	4.9	2.7
Milk, Eggs, cheese	21.7	7.9	15.0	58.0	3.8	2.6
Oil	7.8	0.7	7.2	48.3	2.1	14.9
Sugar	32.5	0.3	32.2	1.0	0.1	0.1

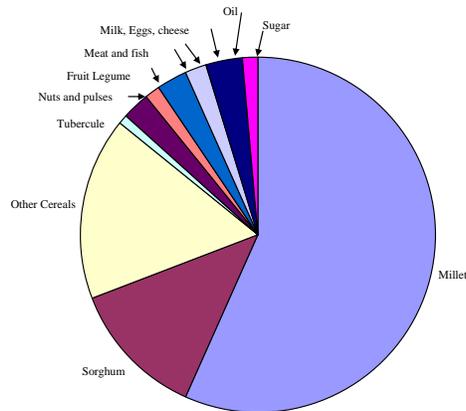
Sources: 2005 QUIBB and 2006 ECVAM.

14. ***Cereals are the population's dominant source of calories, and dietary diversity is limited especially after a crisis.*** According to the QUIBB and ECVAM surveys, over 80 percent of daily caloric consumption came from cereals (millet, sorghum, and other cereals) in 2005 and 70 percent in 2006. Less than 5 percent of the population's daily caloric consumption is derived from meat and fish, dairy products, and fruits and vegetables, which

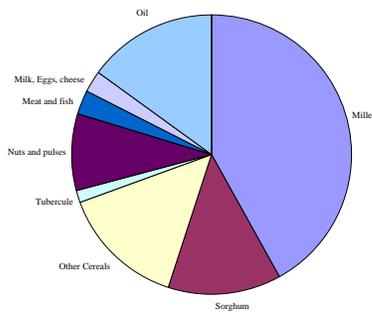
are important sources of micronutrients, such as iron, iodine, vitamin A, and calcium (Figure 2).¹³

Figure 2: Share of Per Capita Caloric Consumption by Commodity Group (2005-2006)

Share of Per capita Caloric Consumption in 2005, by commodity group



Share of Per capita Caloric Consumption in 2006, by commodity group



Source: 2005 QUIBB and 2006 ECVAM.

¹³ The calculations of per capita daily caloric consumption are based on different numbers of commodities and different methodologies in the 2005 and 2006 expenditure surveys. However, the ordering of the commodities remains roughly the same.

15. ***The majority of Niger's population consumes fewer than 2100 calories per day.*** In 2005, 59 percent of the population consumed less than the minimum caloric requirement for adults - 2100 calories per day - as defined by the World Health Organization,¹⁴ while in 2006, about 52 percent of the population consumed less than this minimum requirement. Table 4 also shows important geographical variations among regions. Although poverty rates are lower in urban areas than in rural areas, the percentage of the population with inadequate caloric consumption is actually higher in urban areas in all regions except Dosso. This difference between patterns of poverty as measured by the value of expenditures and estimated calorie consumption reflects differences in food and non-food consumption patterns, as well as variations in prices between rural and urban areas, confirming the multi-dimensional nature of food security. For example, urban households tend to eat more rice, a higher per calorie cost staple, while rural households tend to consume more millet, a staple with a lower per calorie cost. Moreover, a shortage of food affects urban areas through the higher prices of products while rural areas are more affected by their inability to cover own needs from own production. Hence, the best indicator of food insecurity in rural areas is the fact that they are more likely to receive external assistance in an emergency or in the face of the threat of famine given its dependence on subsistence crops.

¹⁴ The daily caloric requirements for specific populations should be calculated based upon age, height, gender, and the individual's activity level (mild, moderate, or intense). In the absence of such information, the standard threshold of 2,100 kilocalories per adult per day is used.

**Table 4: Prevalence of Chronic Food Insecurity in Niger
(% of the population consuming fewer than 2,100 calories per day)**

Region	2005 (%)			2006 (%)		
	Rural	Urban	Total	Rural	Urban	Total
Agadez	41.4	64.4	53.3	66.0	64.6	65.2
Diffa	35.2	43.4	36.4	44.5	54.1	45.7
Dosso	68.7	59.1	67.9	58.5	51.6	57.7
Maradi	74.8	72.9	74.6	44.5	52.8	45.2
Tahoua	37.5	39.8	37.7	52.8	55.7	53.0
Tillaberi	55.7	55.5	55.7	55.4	58.9	55.7
Zinder	58.5	73.4	60.3	46.5	68.0	49.6
Niamey		67.3	67.3		50.7	50.7
Total	58.2	64.1	59.2	51.0	58.1	51.9

Sources: 2005 QUIBB and 2006 ECVAM.

The Nutritional Dimension

Table 5: Prevalence of Under nutrition in Children under 5 in Niger, 2006

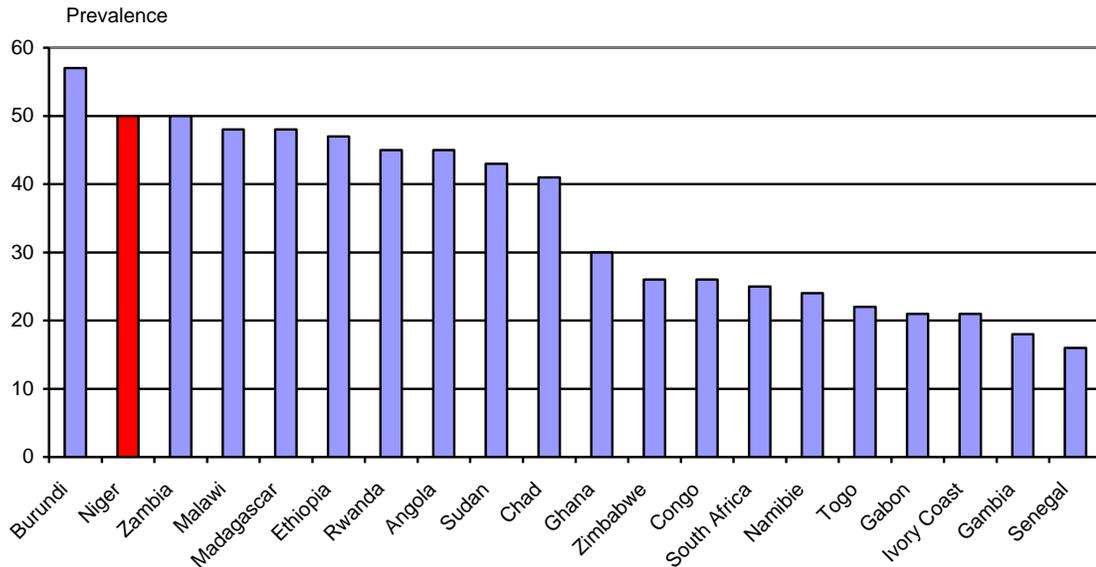
Region	Children 0-59 months	
	Wasting	Stunting
Zinder	10.6	58.7
Maradi	11.6	62.2
Diffa	12.7	46.6
Dosso	10.3	46.6
Tahoua	10.3	46.7
Tillaberi	8.7	46.7
Agadez	10.5	38.8
Niamey	6.7	21.3

Source: 2006 DHS/MICS.

16. ***Nutrition-based indicators of food insecurity confirm the high level of chronic food insecurity in Niger.*** According to the 2006 Demographic and Health Survey/ Multiple Indicator Cluster Survey (DHS/MICS), the prevalence of stunting (low height-for-age) among children in Niger is estimated at 50 percent. The situation varies among regions, with Maradi and Zinder having the highest prevalence of stunting (Table 5). Niger's stunting rate makes it the second worst-affected country in Sub-Saharan Africa (Figure 3). The correlation between under-nutrition and child mortality is high, with under-nutrition associated with 56

percent of all deaths of children under the age of 5 according to data from the 2006 DHS/MICS.¹⁵

Figure 3: Stunting in Sub-Saharan Africa



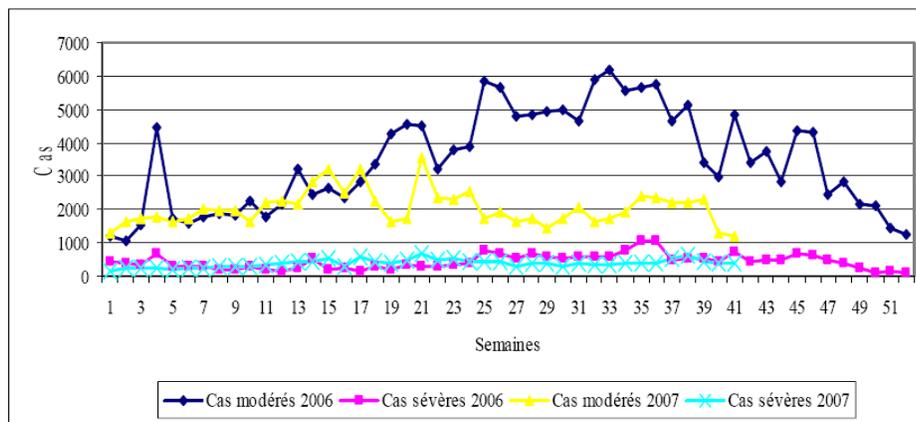
Source: UNICEF (2007).

17. ***Micronutrient deficiencies in the country provide further evidence of chronic food insecurity.*** The main micronutrient deficiencies are of iodine, iron, and vitamin A, which are crucial for vital bodily functions. It is estimated that 20 percent of the population suffers from goiters (often resulting from iodine deficiency), with higher rates in the Dosso and Tahoua regions. Furthermore, an estimated 42 percent of children under the age of 6 suffer from sub-clinical vitamin A deficiency, with 7 percent of their mothers reported to have suffered from night blindness during pregnancy. In terms of iron deficiencies, 84 percent of all children, and 46 percent of women aged 15 to 49, are anemic according to the 2006 DHS/MICS.

¹⁵ Data from multiple rounds of DHS surveys conducted in Niger since 1992 suggest that chronic food insecurity, as measured by stunting, has increased from 40 percent (between 1992 and 2000) to 50 percent (2006).

18. **Nutrition outcomes also provide evidence that Niger’s rural population suffers from seasonal food insecurity.** There is qualitative evidence that during the hungry season (*soudure*), between June and September, household food consumption is lower in quantity and worse in quality. This is supported by the prevalence of wasting in Niger (10 percent), classified as “high” according to the World Health Organization’s (WHO) thresholds for public health problems. Figure 4 shows the number of reported cases of moderate and acute malnutrition by week for 2006 and 2007. While the data may be subject to selection bias (as a higher number of nutritional rehabilitation centers opened during this period), a general pattern of seasonal food insecurity emerges. In 2006, there was a marked increase in reported cases of moderate malnutrition between April (week 16) to October (week 39), coinciding with the pre-harvest period and hungry season. The same pattern, albeit not so strong, was also observable in 2007.

Figure 4: Number of Cases of Reported Wasting (by Week), 2006



Source : SNIS/MSP/Niger

RISK, VULNERABILITY, AND HOUSEHOLD FOOD SECURITY

19. ***Niger's population is also vulnerable to transitory food insecurity, defined as reduced access to food after a shock.*** Shocks such as droughts, floods, pest attacks, health epidemics and economic shocks¹⁶ not only have an immediate impact on households' food security but can also have longer-term consequences and leave households in debt or without the necessary assets to guarantee a minimum level of production.¹⁷ As vulnerability is an *ex-ante* measure of well-being, an ideal vulnerability analysis would follow the approach outlined in Box 2. While the data available will not permit covering all the steps outlined in the box, this section first summarizes the results of other reports and attempts to conduct a vulnerability analysis using some of the available data surveys (2005 QUIBB and 2006 ECVAM).

Box 2: Steps for Identifying the Most Vulnerable in Niger

- Identify potential shocks or hazards that could affect communities or individuals.
- Determine the level of risk (probability of being affected by this shock) of the affected populations.
- Note the negative impact of these shocks on individual, household, and community-level food security and how households cope with these shocks (for example, a percentage reduction in the production of staple food crops or an increase in staple food crop prices or a reduction in livestock prices).
- Determine the level of households food insecurity and the characteristics of individuals, households, and communities who are the most vulnerable to shocks (those most at risk and most affected by the negative impact of the shock).
- Determine whether vulnerable households will have "unacceptable" levels of food insecurity as a result of the shocks. For example, do household reduce the number of meals or their dietary diversity? Is there an increase in malnutrition?
- Using this information, construct tables and maps to identify the most vulnerable population groups and regions.

Sources: See Tesliuc and Lindert (2004); Hoddinott, and Quisumbing (2003); Hoogeveen et al (2004); and del Ninno and Arini (2005).

¹⁶ UNDP and Government of Niger (2007) notes two main types of risk factors in Niger: conflicts (farmer-herder and farmer-farmer) and natural shocks, such as droughts and production shocks.

¹⁷ See Carter and Barrett (2006).

Risks and Shocks

20. ***Although rural and urban households in Niger are susceptible to a variety of risks and shocks, not all of these shocks result in food insecurity or food crises.*** Whether or not food insecurity occurs depends on households' assets, risks, and risk management strategies. This section focuses on national and regional covariant shocks¹⁸ that are highly correlated with the production of and access to food, namely, droughts, harvest failures, and rising grain prices (Holzmann and Jorgensen, 2000).¹⁹

21. ***Over the past 12 years, Niger has experienced three severe droughts, two of which were associated with food crises.*** The country experienced droughts in 1996, 2000, and 2004,²⁰ and these weather-related shocks coincided with lower cereal production, higher cereal prices, and lower incomes for the rural poor. Among these drought years, 1996/1997 and 2004/2005 were identified as severe food crisis years.²¹ In 2005, an estimated 2.4 million Nigeriens were affected by severe food shortages, with more than 800,000 of these classified as critically food-insecure (FEWSNET 2005).²² Although the 2004/05 food crisis was not on the scale of the 1968-74 or 1983-84 famines, the gross mortality rate reached 1.5 deaths per 10,000 per day in certain regions, and the child mortality rate reached 4.1 deaths per 10,000 per day (Médecins sans Frontières 2005).

¹⁸ Shocks that affect all the households in an area or group are called covariant shocks, as opposed to idiosyncratic shocks that affect only some households.

¹⁹ This paper adopts the definitions proposed by the World Bank (2001) for the concepts of risks, shocks, poverty, and vulnerability. Poverty is defined as an *ex-post* measure of well-being, whereas vulnerability is an *ex-ante* measure of well-being (or expected outcome). Central to the concept of vulnerability is risk, which is a probability distribution of events. Examples of risks include natural risks, health risks, economic risks, lifecycle risks, social risks, political risks, or environmental risks. When a risk materializes, it is known as a shock.

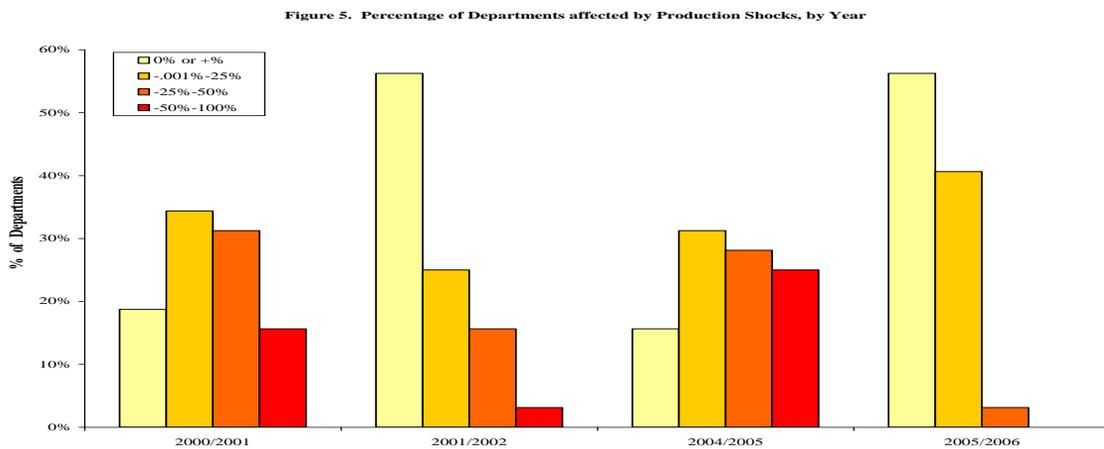
²⁰ Annual rainfall was lower than one standard deviation from the mean. See Nicholson et al (2000).

²¹ Since the 1960s, Niger has experienced drought-related transitory food insecurity in 1966/67 (in Bandabari), 1973/74 (in Dakoussou), 1984/85 (in El Bohari), 1990/91, 1993/94, 1996/97 (in Matche mai), 2000/01, and 2004/05 (in Wazaka gaya ma). Of these years, only 1973/94, 1984/85, 1990/91, 1996/97, and 2004/2005 were classified as severe food crises (Government of Niger/DNPGCA 2007).

²² As the definitions of a food crisis vary, identifying clear thresholds for food crises is problematic. While a number of households were affected by food insecurity in 1997/1998 and 2000/2001, data on the number of households affected are not readily available. Nevertheless, it is commonly agreed that the 2004/2005 food crisis was the most severe, both in terms of number of people affected and the severity of the problem.

22. **While droughts consistently caused production to decline, the severity of the impact has varied sharply across sub-regions within Niger and also over time.** While the 2000/01 drought resulted in a per capita production decrease of more than 50 percent in about 15 percent of departments, the 2004/05 drought affected over 25 percent of departments. Comparatively, during non-drought years (such as 2001/2002 and 2005/2006), less than 3 percent of all departments experienced a per capita drop in production of more than 50 percent.

Figure 5: Percentage of Departments Affected by Production Shocks by Year, 2000-2006



Source: Aker (2007).

23. **These marked differences in regional climate fluctuations are also reflected in higher dispersion of grain production in drought-prone departments around the observed production mean in Niger.** These fluctuations measured by the coefficient of variation²³ range from 0.11 in the Magaria department (Zinder) to 0.75 in the Tillaberi department. Overall, the regions of Maradi and Zinder (which account approximately 40 percent of national millet production) have the lowest coefficients of variation (0.22 and 0.27, respectively), whereas the deficit regions of Tillaberi and Tahoua have the highest

²³ The coefficient of variation is the standard deviation of per capita grain production in a particular department over the entire period, divided by mean per capita grain production.

coefficients of variation. This suggests that rural households living in drought-prone areas (such as Tahoua and Tillaberi) are likely to be affected by a higher degree of output risk.

Table 6: Percentage of Households Exposed to Shocks by Poverty Level and Quintile

	Drought	Production Shock	Death	Illness (severe or chronic)	Flood	Job Loss	Land loss
All HH	47.62	16.59	11.22	10.55	1.99	1.48	0.90
Poor	49.03	19.16	10.91	10.84	2.09	0.63	1.59
Non-poor	46.04	13.68	11.57	10.22	1.88	1.21	1.36
Quintile1	47.57	21.87	10.28	10.9	2.28	0.56	1.94
Quintile2	46.76	14.73	10.82	10.5	1.97	1.15	0.8
Quintile3	45.60	16.34	10.52	10.56	2.01	0.86	1.39
Quintile4	47.85	13.98	10.99	10.20	1.65	0.61	1.10
Quintile5	50.50	15.59	13.99	10.51	2.01	1.37	2.15

Source: 2005 QUIBB.

24. ***Vulnerability to drought is associated with low levels of household assets and human capital.*** Poor households are not more exposed to shocks. Table 6 shows the relative impact of different types of shocks in Niger on households in different poverty levels and income quintiles. According to the available information, drought is the most prevalent type of shock experienced by households in Niger, followed by production shocks. On average, poor households appear to be more likely to be exposed to natural and health shocks (droughts, floods, production losses, and illnesses) than richer households. When stratifying the results by income quintile, however, the correlation between poverty and risk is less clear. Econometric analysis by Ouedrago (2008) has shown that households whose head is unemployed, works in the informal sector, is female, has a low level of education, or does not own livestock and those that have high dependency ratios are most likely to suffer from drought. In terms of location, households in Tahoua have the highest combination of numbers of residents and numbers of people having been exposed to drought and production shocks followed by those in Maradi, Tillabery, and Diffa (see Table 7).

Table 7: Distribution of Households Exposed to Drought across Regions of Residence (%)

Region	Population %	Affected	Incidence
Agadez	3.2	2.4	0.74
Diffa	3.7	5.9	1.59
Dosso	9.7	5.1	0.53
Maradi	19.7	20.8	1.06
Tahoua	20.8	32.5	1.56
Tillabery	15.9	16.5	1.04
Zinder	20.2	16.7	0.83
Niamey	6.6	0.2	0.03
Total	100	100	1

Source: 2005 QUIBB.

25. **According to the information from the 2005 QUIBB, Nigerien households have fairly limited coping strategies to deal with covariate and individual shocks.** According to this survey, receiving food aid was rated as the most common strategy used by households to mitigate the effects of shocks, including natural, economic, and health shocks (see Table 8). For droughts alone, almost one in four households stated that they had used food aid as a coping strategy. Following food aid, households cited requesting assistance from others and the sale of agricultural products as the most common strategies, followed by the sale of household assets, borrowing, and assistance from NGOs.

26. **The probability of receiving food aid is not correlated with poverty in rural areas.** Among those affected by the drought in rural areas, only 72 percent of the poor received food aid compared with almost 80 percent of the non-poor. However, in urban areas, poor households affected by drought were more likely to receive food aid than non-poor households. These results suggest that the targeting of food aid has been either non-existent or it has focused on helping all of those affected by drought rather than only poor households affected by drought (see Tables 8 and 9).

Table 8: Household Coping Strategies after Exposure to Drought (%)

<i>Strategies</i>	<i>Drought</i>
Food aid	74.8
Sell agricultural products	15.3
sell agricultural materials	3.0
Sell household assets	8.0
Get help from other households	40.0
Assistance from NGOs	8.1
International assistance	6.2
Borrowing	7.3
Others	1.2

Source: 2005 QUIBB.

Table 9: Percentage of Drought-affected Households Receiving Food Aid in 2005 by Poverty Category and Location

	Urban	Rural	All
Poor	73.0	72.2	72.3
Non-poor	52.4	79.3	78.1

Source: 2005 QUIBB.

27. ***Qualitative studies conducted by numerous NGOs and the World Food Programme (WFP) paint a notably different picture of household coping strategies.*** The WFP's Emergency Food Security Assessment (WFP, 2005) noted that the most common strategies used by households to respond to natural shocks include reducing the number of meals they eat per day, collecting wild food, borrowing money or food from other households, migrating, or selling assets, land, or livestock. While the study did not focus on the prevalence of these strategies (overall or by region) or their relative importance, migration, the sale of household assets, the sale of livestock, and borrowing were highlighted as the most common strategies used by Nigerien households.

28. **Some coping mechanisms make households more vulnerable to future food insecurity.** Existing information confirms that, although borrowing and selling strategies may enable households to cope with shocks in the short term and help them to smooth their income, they effectively decapitalize the household of its productive assets (natural capital, human capital, and financial capital), thereby making it more vulnerable to future food insecurity. For example, Marinho and Gerard (2008) estimate that 47 percent of households had sold livestock in response to the impact of the 2005 food crisis, and, as a consequence, 60 percent of households in the national poverty survey were still in debt after the crisis, with the average debt equivalent to 427 kilograms of cereals.

29. **Livestock ownership affects coping mechanisms.** In rural areas food aid is the most common form of coping mechanism, especially for those who do not have any livestock. In urban areas, households without any livestock are most likely to receive help from other households (70 percent).

Table 10: Coping Mechanisms after Drought by Ownership of Livestock in Rural and Urban Areas (%)

Coping Mechanisms	No livestock	RURAL			No livestock	URBAN	
		Livestock value below median	Livestock value above median			Livestock value below median	Livestock value above median
Food aid	80.7	74.7	72.7		55.8	72.7	76.1
Sell agricultural products	10.7	14.7	18.6		18.6	6.3	33.0
Sell agricultural equipment	3.6	2.5	2.8		1.5	7.4	5.9
Sales of HH assets	8.0	8.3	8.2		1.3	11.3	3.5
Get help from other HH	42.8	33.8	40.5		70.0	48.4	61.3
Assistance from NGO's	7.6	7.5	10.1		4.0	1.0	2.0
International assistance	6.0	4.4	8.3		11.4	1.0	0.0
Borrowing	9.4	5.6	7.0		20.5	8.0	5.4
Others	2.2	1.1	1.5		0.0	0.0	2.0

Source: 2005 QUIBB.

Vulnerability to Food Insecurity

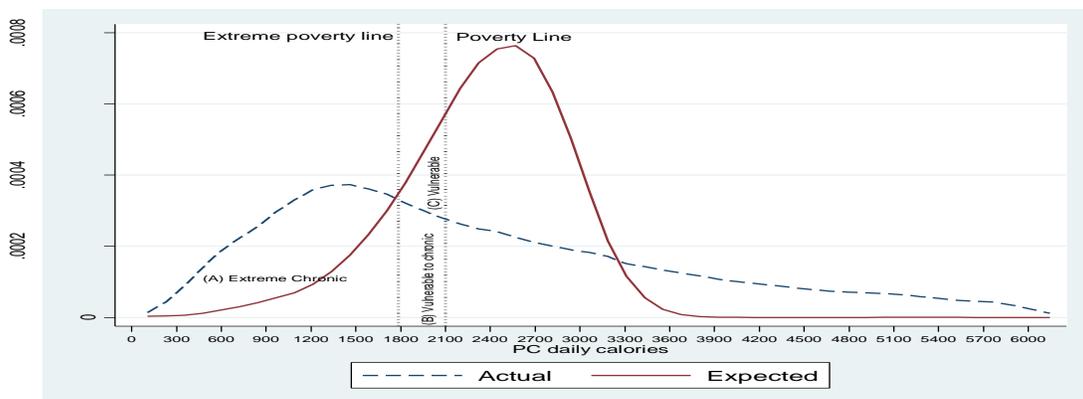
30. ***Despite the wealth of data collected on the subject of household food security, it has not been possible to develop a common classification of the most vulnerable households within the country and over time.*** There have been numerous expenditure, consumption, and vulnerability surveys conducted by the Government of Niger, the WFP, and various NGOs between 2004 and 2007.²⁴ Each study used a different set of variables to define food security and vulnerability, in addition to taking different approaches and methodologies to data collection. For example, only the 2005 QUIBB and 2006 ECVAM contain information on expenditure and consumption. Therefore, it is difficult to use a consistent definition and find comparable sources of information for estimating household food insecurity (see Box 3).

²⁴ Vulnerability surveys include: *Enquete Conjointe sur la Vulnerabilité a l'Insecurité Alimentaire des Ménages au Niger* (INS and SAP, November 2006); *Enquete sur la Vulnerabilité a l'Insecurité Alimentaire des Ménages au Niger* (INS, WFP, FAO, UNICEF, FEWS NET, CILSS, December 2007); and *Enquête sur la Sécurité Alimentaire en Situation d'Urgence au Niger* (WFP, 2005 a).

Box 3: Methodologies for Estimating Household Food Insecurity

Besides the simple caloric consumption analysis presented in the first section of this chapter, there are several other methodologies that can be used to calculate household food insecurity:

- The first measure estimates the expected level of caloric consumption based on household human and physical assets and capabilities and compares it with the observed level of caloric consumption below 2100 calories per capita per day into three categories of risk:
 - Extreme chronic level (A) of food insecurity reflects both observed and expected levels of consumption below the minimum level of caloric consumption
 - Vulnerability to chronic level (B) of food insecurity summarizes the share of households with observed consumption levels below the minimum level of caloric consumption that have the human and physical assets that would allow them to consume adequate level of calories but that cannot do so because of particular circumstances like drought.
 - Vulnerability to food insecurity level (C) summarizes the share of households exposed to risks and uncertainties that has affected their levels of consumption. These are the households who are expected to consume less than 2100 calories per capita a day in response to a shock but who manage to consume more.
 - The overall level of food insecurity is measured by the sum of chronic (A) and transient food insecurity.



- The second measure calculates the food variety index named dietary diversity. This index is a simple, or weighted, count of foods or food groups over a given reference period. It emphasizes the importance of consuming a wide variety of food so as to enhance dietary quality. The main disadvantage of this method is that it does not take into account quantity nor does it control diets for caloric composition. However, review of other developing countries analysis confirms a positive correlation between dietary diversity and nutritional adequacy.
- The third measure uses principal component analysis to summarize multidimensional data source into fewer indicators to analyze different outcomes. The method makes it possible to identify patterns in multidimensional data and to highlight similarities and differences by reducing the number of dimensions without much loss of information.
- The final measure uses a spatial econometric model to determine local household food insecurity using the 2006 ECVAM and Geographic Information System data. This model follows a theoretical methodology to spatially predict food vulnerability using all available source of information at a given geographical level controlling for their geographical correlations.

Sources: Coates et al (2003); Hoddinott and Yohannes (2002); Migotto et al (2006); and del Ninno et al (2006).

31. ***In Niger at least 22 percent of the households are classified as extreme chronic food-insecure, despite a small reduction in the country’s level of food insecurity in 2006 compared to 2005.*** According to the first measure of food insecurity presented above in Box 3, overall food insecurity (extreme chronic food insecurity and vulnerable to chronic food insecurity) is by definition similar of the figure presented in Table 4. The reduction of 7.3 percentage points in food insecurity between 2005 and 2006 was the result of the increase in the caloric consumption levels of the Nigerien population after the food crisis. The reduction in the level of extreme chronic food insecurity was particularly large, going down from 37 to 22 percent. However, this reduction in chronic food insecurity was accompanied by a smaller increase of about 8 percent in those vulnerable to chronic levels of food insecurity (see Table 11).

Table 11: Household Food Insecurity Levels

	2005	2006
Food Insecurity		
Extreme Chronic ^{a/}	37.4	22.0
Vulnerable to Chronic ^{b/}	21.9	29.9
	59.3	51.9
Vulnerable to food insecurity ^{c/}	9.7	5.3

Sources: 2005 QUIBB and 2006 ECVAM.

Notes: a/ Actual and expected consumption below minimum.

b/ Actual consumption below minimum, but expected to have higher levels of consumption.

c/ Higher expected consumption levels but still in between extreme poverty line and poverty line.

32. ***There were substantial variations in food insecurity across regions between 2005 and 2006.*** In 2005, Maradi, Dosso, and Niamey were the regions with the highest levels of extreme chronic and total food insecurity. In 2006, Dosso remained the region with the highest level of chronic food insecurity in the country followed by Niamey and Tillabery, while the level of food insecurity had fallen in Maradi (see Table 12).

33. **The overall dietary diversity index improved between 2005 and 2006.** Given that the lists of products consumed in the 2005 and 2006 surveys are not the same, the dietary diversity index should be compared with caution over time. In 2005, Niamey, Dosso, and Maradi had the lowest level of chronic food insecurity as presented in Table 12. However, Table 13 shows that the dietary diversity index of Dosso is higher than the national average and of that of that of Niamey. This discrepancy can be explained by the fact that while poor rural regions such as Dosso had received a lot of assistance to deal with the famine,²⁵ urban households such as those from Niamey had to limit their dietary diversity as result of price increases. Measured by this index, in Niamey levels of food insecurity increased a lot between 2005 and 2006 while the situation in Tillaberi improved a little while Dosso and Agadez had higher levels of food insecurity in 2006 than in 2005 (see Table 13) consistently with the high level of chronic food insecurity reported in Table 12.

Table 12: Chronic, Transient, and Vulnerable levels of Food Insecurity

	2005			2006		
	Extreme Chronic	Vulnerable to Chronic	Vulnerable	Extreme Chronic	Vulnerable to Chronic	Vulnerable
Agadez	33.2	20.1	9.5	21.5	43.9	2.9
Diffa	23.6	12.8	17.3	14.4	31.3	4.5
Dosso	49.4	18.5	9.7	31.5	26.0	5.4
Maradi	48.1	26.5	9.4	18.2	26.6	5.8
Niamey	50.9	16.4	15.3	25.3	25.4	5.9
Tahoua	19.1	18.6	8.0	21.7	31.3	5.8
Tillaberi	31.6	24.1	7.6	25.2	30.4	5.1
Zinder	36.2	24.2	10.0	16.5	32.9	4.9
Urban	42.9	21.1	14.0	25.1	33.0	5.7
Rural	36.2	22.0	8.8	21.3	29.4	5.2
Niger	37.4	21.9	9.7	22.0	29.9	5.3

Sources: 2005 QUIBB and 2006 ECVAM.

²⁵ For example, as an immediate response to the famine, the CAD/UEEPN (Union of Evangelical Protestant Churches of Niger) had provided food supplies to 600 families in three rural communes in the Dosso Province.

Table 13: Dietary Diversification Index

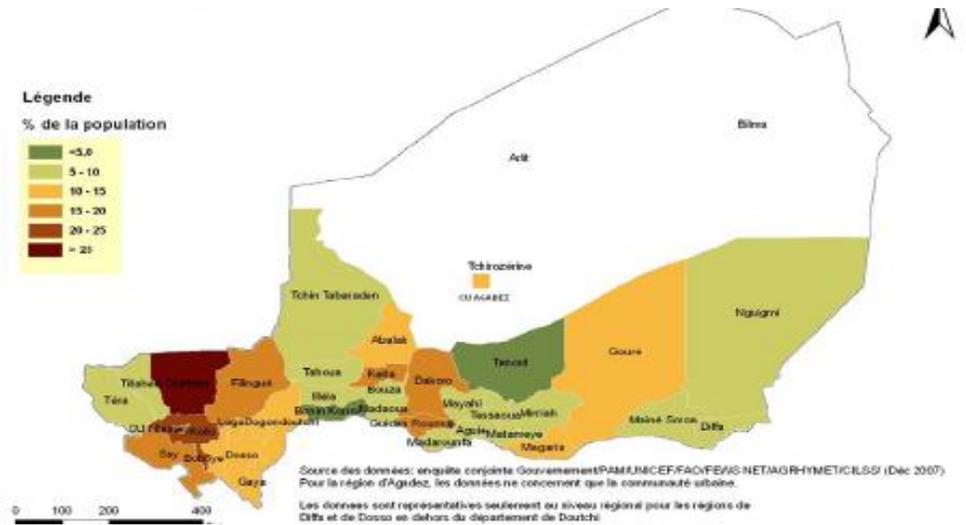
	2005	2006
Agadez	14.0	15.9
Diffa	18.1	18.6
Dosso	20.5	18.3
Maradi	18.0	21.5
Niamey	13.6	23.2
Tahoua	18.2	19.0
Tillaberi	16.6	20.8
Zinder	15.5	19.5
Urban	12.7	19.6
Rural	18.2	19.9
Niger	17.2	19.8

Sources: 2005 QUIBB and 2006 ECVAM 2006.

34. According to the principal component index, the poorest regions measured in terms of per capita household expenditure are also the most vulnerable to food insecurity.

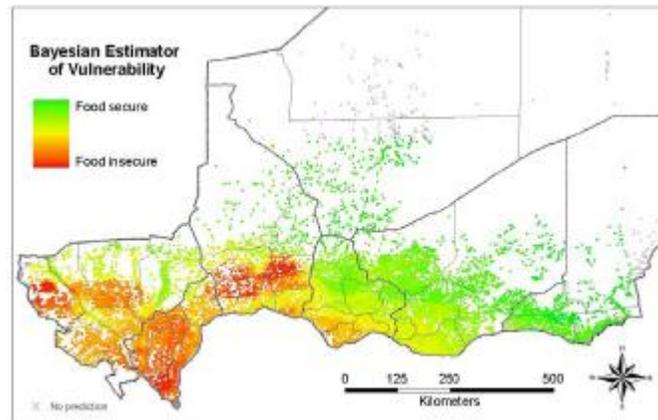
Based on a demographic, health and nutrition survey carried out in 2007 by the INS, UNICEF, and Macro International, the regions of Tillaberi, Dosso, and Maradi were the most vulnerable to food insecurity, with approximately 17, 13, and 11 percent of the affected population respectively. This is consistent with the results of the 2005 QUIBB survey, which identified Maradi, Dosso, Tillaberi, and Zinder as the poorest regions. Overall, the survey data confirm that vulnerability is more heavily concentrated in the rural regions of Niger, with 12 percent of the rural population vulnerable to food insecurity compared with 6 percent in urban areas. Figure 6 shows the percentage of the population that is vulnerable to food insecurity by geographic region (INS et al, 2006). Although these are interesting results, they are not comparable with the results of the previous two indexes of food insecurity.

Figure 6: Percentage of the Population Vulnerable to Food Insecurity, 2007



35. **Based on 2006 data and using a spatial framework for vulnerability, it can be shown that proximity to paved roads and access to water are key determinants of vulnerability to food insecurity.** Figure 7 present results from a study by Marinho and Gerard (2008), which has estimated that most vulnerable households in Niger are located in the south with the exception of the extreme south of Tahoua, the middle and the south of Dosso, or the west of Tillabéri. According to this study, the strongest determinants of food insecurity in Niger are proximity to a paved road, access to water sources, location within an agro-climatic zone, the recorded amount of rainfall or the normalized difference vegetation index (NDVI), and recent shocks or food crises. While the identification of Dosso and Tillabéri as vulnerable regions is consistent with the 2007 INS survey and previous findings as presented in Table 2 or Table 9, in terms of dietary diversification, Maradi is not classified as vulnerable to food insecurity.

Figure 7: Predictions of Areas Vulnerable to Food Insecurity in Niger, 2006



CHAPTER 3: FOOD AVAILABILITY AND ACCESS

Niger relies mainly on domestic production of grains (primarily millet and sorghum) for its cereal supply. As production varies substantially from year to year due to extreme rainfall variations, imports (consisting mainly of wheat, maize, and rice) are required to meet local consumption needs. However, food aid and commercial imports typically account for a small percentage of total cereal supply on an annual basis, averaging 7 percent of total cereal availability between 2000 and 2005. Trade data in Niger are unreliable and underreported: unofficial imports of grains from Nigeria may account for as much as 200,000 tons of total supply. Survey evidence and analysis of prices indicate that Niger's wholesale cereal markets are generally well integrated, but a lack of production data for Nigeria prevents a detailed analysis of market links between the two countries. Nonetheless, simulation analysis suggests that a reduction in net imports from Nigeria in 2005 was a major factor in the sharp rise in market prices in Niger during the 2005 food security crisis.

FOOD AVAILABILITY: PRODUCTION, IMPORTS, AND FOOD AID

Agricultural Production

36. *Despite unfavorable agro-climatic conditions and recurrent natural disasters, agriculture and livestock-raising play a key role in Niger's economy.* The agro-food sector accounts for approximately 40 percent of Niger's gross domestic product (GDP) and is the major source of employment for more than 80 percent of the total population, most of whom live below the poverty line. In addition to agriculture, which accounts for about 52 percent of rural output, livestock raising is an important source of income for pastoral and agro-pastoral households, with an estimated 7 million animals in Niger in 2005 according to the WFP's EFSA survey (WFP, 2005). Agro-pastoral products account for about 85 percent of

Niger's export revenues (excluding uranium), with the livestock sector alone accounting for 56 percent (mostly live exports).

37. ***While there are a variety of livelihood zones within the country, agriculture is primarily characterized by subsistence farming, and production of staple food crops is based on rain-fed agriculture.*** Niger is a large country located within the Saharan, Sahelo-Saharan, and Sahelian agro-ecological bands of Africa, with rainfall ranging from 250 to 800 millimeters per year. Niger is characterized by three distinct agro-ecological areas: the pastoral zone, the agro-pastoral zone, and the agricultural zone (Figure 8)²⁶ (FEWS NET 2005). In the pastoral zone, which is located in the northern part of the country, natural conditions make this very good pasture land. However, in recent years, demographics have brought about a development of agriculture along the southern belt of this area and a reduction of pasture space. The agro-pastoral and agricultural zones are located in the southern regions, which involve various sub-systems including a dune system, the Eastern plains, and the Western plateaux. The dune system primarily produces millet, characterized by low yields and deficit household production. The Eastern plains include the Maradi and Zinder regions, where staple food crops (millet and cowpeas) are produced using semi-intensive agricultural techniques, intercropping, and the use of small livestock. The Western Plateaux (Tillaberi and Dosso) also cultivate staple food crops, with localized wetlands used for market garden production. Production of staple food crops in the agro-pastoral and agricultural zones is primarily based on rain-fed agriculture, with irrigated agriculture practiced in localized areas (the Niger River basin, the Goulbis in Maradi and Zinder, the Maggia and Tarka, Lake Chad, and Dallols in the Dosso region). Agriculture is characterized by a family approach, on plots averaging five hectares (WFP 2005). Overall subsistence farming and animal husbandry are cultivated using traditional techniques. With increasing population density in the most productive zones – the population growth rate in Niger

²⁶ In its 2005 Livelihood Profile for Niger, the USAID's Famine Early Warning Systems Network (FEWS NET) identified eight livelihood zones for the country: the desert, the Bilma oasis sub-zone, air mountain cultivation, pastoral, agro-pastoral, rainfed agriculture, sub-agriculture zones with high out-migration, irrigated cash cropping, the Lake Chad region, and the irrigated rice region (FEWS NET, 2005).

Maradi and Zinder are considered to be the “bread baskets” of Niger, accounting for approximately 40 percent of national millet production.

39. ***Per capita increases in production are the result of an expansion in cultivated land, rather than higher yields.***²⁹ Although national cereal production increased by 48 percent between 1985 and 2004 (from 1.8 million metric tons in 1985 to 2.7 million metric tons), the increase was primarily extensive in nature; the total cultivated area increased by more than 84 percent over the same period from 4.3 million hectares to over 7 million hectares (Table 14). Cereal yields remained fairly stable over this period, averaging 372 kilogram per hectare, which is two and a half times lower than other West African with comparable conditions. These relatively low cereal yields are related to low rates of technological adoption, the use of rainfed agriculture, and the frequency of natural shocks. These, in turn, are affected by limited agricultural research and extension projects.

40. ***The onion and cowpea sub-sectors offer the best growth potential for exports.*** The World Bank’s Agro-Pastoral Export Promotion Project identified five priority sub-sectors in agriculture: onions, cowpeas, sesame, souchet, and gum arabic. Onions are produced around the vast periodic watercourses (broad dry river beds) that cross much of south-central Niger and account for 50 percent of the value of the exports of these five sub-sectors. Niger is also a major producer of cowpeas, which have replaced groundnuts as a cash crop for rural households. As is the case with staple food crops, the increase in cowpea production over the past two decades has occurred largely because of an expansion of the area being cultivated. As per capita cowpea consumption is fairly modest (6 kilograms per capita), 50 to 75 percent of Niger’s cowpea production is exported to Nigeria, mostly on an informal basis. The potential for higher yields and exports for these crops is constrained by a lack of storage facilities and practices, marketing channels (especially access to market information), and improved agricultural techniques.

²⁹ Production shocks are defined as years when per capita cereal production within a given department decline by more than 25 percent compared to the six-year average.

41. ***Niger's livestock herd and exports are among the largest in West Africa.*** Despite an austere natural environment characterized by low rainfall, Niger's agro-pastoral space is vast and diversified. Niger's livestock herd, estimated at 28 million head in 2006 (7.3 million heads of cattle, 9.2 million sheep, and 11.2 million goats), is the largest in West Africa. Livestock exports to Nigeria account for more than 90 percent of overall livestock exports, although little meat is exported from Niger. Major constraints to increasing herd sizes and increasing productivity include limited veterinary and other inputs, a feed balance deficit, and limited availability of agricultural and industrial by-products. However, there are substantial opportunities for increasing the value of livestock exports and meat exports to coastal countries, primarily Nigeria, Ghana, and Ivory Coast.

Table 14: Millet and Sorghum Production in Niger, 1985-2004

Year	Population	Cultivated Areas (ha)	Production (Metric Tons)	Area per Capita	Production per capita
1985	6,565,000	4,310,931	1,774,113	0.7	270
1986	6,783,000	4,348,597	1,743,559	0.6	257
1987	7,008,000	4,359,029	1,362,777	0.6	194
1988	7,240,000	4,995,768	2,326,505	0.7	321
1989	7,480,000	5,094,042	1,754,605	0.7	235
Average (85-89)		4,621,673	1,792,312	0.7	256
1990	7,728,000	6,942,899	2,045,960	0.9	265
1991	7,967,568	6,456,771	2,314,991	0.8	291
1992	8,214,563	7,519,314	2,171,693	0.9	264
1993	8,469,214	6,099,128	1,714,310	0.7	202
1994	8,731,760	6,950,251	2,368,538	0.8	271
Average (90-94)		6,793,673	2,123,098	0.8	259
1995	9,002,444	7,164,356	2,034,983	0.8	226
1996	9,286,395	7,138,358	2,172,213	0.8	234
1997	9,574,274	6,386,922	1,641,530	0.7	171
1998	9,871,071	7,607,398	2,894,013	0.8	293
1999	10,177,080	7,449,871	2,772,346	0.7	272
Average (95-99)		7,149,381	2,303,017	0.7	239
2000	10,492,569	7,306,951	2,049,890	0.7	195
2001	11,060,291	7,835,456	3,022,350	0.7	273
2002	11,403,160	7,816,590	3,236,927	0.7	284
2003	11,756,658	8,041,222	3,502,464	0.7	298
2004	12,121,114	7,823,260	2,637,242	0.6	218
Average (00-04)		7,764,696	2,889,775	0.7	254
Average (80-04)		6,085,875	2,128,794	0.72	253

Sources: Production statistics from the Ministry of Agriculture, various years, and WFP (2005b).

42. ***Over the past 22 years, climatic shocks – primarily droughts – have resulted in high regional and annual fluctuations in staple food crop production.*** Between 1990 and 2004, the years of lowest cereal production were 1993, 1997, 2000, and 2004, all of which coincided with natural shocks (droughts). The high degree of *year to year variation* in cereal production is evident when looking at the coefficient of variation (CV).³⁰ The average coefficient of variation for national millet and sorghum production is 0.20 and 0.35 respectively, with an inter-crop correlation coefficient of 0.91.³¹ In general, sorghum production is more variable than millet production, as the most common varieties of sorghum are of longer duration and less drought-tolerant than millet. Beyond the national-level variation, there is also significant *geographical variation* in millet production, as is evident when assessing the CVs by department. CVs range from 0.11 in the Magaria department (Zinder) to 0.75 in the Tillaberi department. Overall, the regions of Maradi and Zinder have the lowest CVs, while the regions of Tillaberi and Tahoua have the highest CVs. This suggests that rural households in Tillaberi and Tahoua are exposed to higher production risk than those in other departments.

43. ***Department-level variations in staple food crop production – as opposed to national-level production variations – are an important component of grain market performance and, hence, food prices, which affect households' access to food.*** The geographical distribution of drought and production shocks varies substantially between drought and non-drought years. In 2000, a severe drought resulted in national production that was 21 percent lower than the 10-year average. During that year, only 15 percent of the departments experienced a per capita decrease of more than 50 percent. In 2004, a drought also contributed to a serious reduction in Niger's staple food crop production, with cereal production 12 percent lower than the 10-year average. Although national cereal

³⁰ The CV is calculated as the ratio of the standard deviation of cereal production to the mean of cereal production over the time period.

³¹ The CVs for millet and sorghum in Nigeria, which has a higher annual average rainfall than Niger, are only 0.16 and 0.10 respectively. Production in Niger and in Nigeria is correlated to a limited extent, with correlation coefficients of 0.43 for millet and 0.51 for sorghum respectively (Dorosh 2008 a).

production was higher in 2004, 25 percent of departments experienced a per capita decrease of more than 50 percent. During years of adequate rainfall, however, less than 3 percent of all departments experience a per capita drop in production of more than 50 percent. This suggests that the geographical distribution of drought affects grain market performance and prices.

Table 15: Official Cereal Imports for Niger, 1998-2004

Commodity	1998	1999	2000	2001	2002	2003	2004	Average	Percentage
Millet	27,731	4,056	84,004	81,657	4,530	6,699	29,811	34,070	0.20
Sorghum	13,363	1,469	15,872	19,923	950	715	7,470	8,537	0.05
Maize	88,262	56,103	85,116	80,727	12,184	19,232	48,803	55,775	0.34
Rice	91,497	79,035	62,904	70,041	74,884	37,430	59,399	67,884	0.41
Total	220,853	140,663	247,897	252,349	92,548	64,076	145,484	166,267	

Sources: DPP and Ministry of Agriculture, various years and WFP (2005 b).

44. ***The level of governmental support for the agriculture sector is among the lowest in West Africa.*** In 2004, the Government of Niger's total expenditures on agriculture were US\$16 million, which represented 1 percent of total governmental spending for that year and 0.5 percent of agricultural GDP. Of all West African countries, only Guinea Bissau had a lower percentage of spending on agriculture (0.5 percent) for that year.

Imports and Food Aid

45. ***In light of the strong year to year variation in staple food crop production in Niger, total food availability depends strongly on commercial imports, imported food aid, and public stocks.***³² Overall, the country's agricultural trade balance remains heavily in deficit,

³² National-level data on private stocks are unavailable. However, according to the cereal marketing survey conducted by University of California-Berkeley and four NGOs (CARE, Catholic Relief Service, Helen Keller International, and World Vision), the duration and magnitude of private stocks of millet and sorghum are fairly limited for both farmers and traders. Traders store stocks for an average of 30 days, ranging from 7 days to 60 days. In addition, a small percentage of traders store stock for more than a year. The average duration of storage by farmers is longer, with an average of 6 months. However, a small percentage of farmers store cereal crops for more than a year.

and imports of foodstuffs represent one-third of the country's import bill. However, data on cereal imports and exports in Niger are highly unreliable, due in part to the informal trade that occurs between Niger and its neighbors Benin, Burkina Faso, Chad, Mali, and Nigeria (Table 15). Nevertheless, existing data indicate strong year to year fluctuations in cereal imports.³³ Official cereal imports averaged 166,000 metric tons between 1998 and 2004, with rice and maize representing the highest percentage of total cereal imports. Official millet imports averaged 34,000 metric tons between 2000 and 2005, representing approximately 1 percent of total millet availability (Table 16). Millet and sorghum imports through official channels increased dramatically in 1997/1998, 2000/2001, and 2001/2002, which coincided with drought years. Nevertheless, official import data suggest that cereal imports were lower than expected during the first half of the 2004/2005 marketing season.

³³ These figures are provided by calendar year rather than by marketing year, which is most useful for the analysis of cereal availability.

Table 16: Niger - Cereal Production and Availability, 1990-2005

	Average Quantity (thousand tons)				Coefficient of variation
	1990-1994	1995-1999	2000-2005	1990-2005	1990-2005
Production	2,238	2,363	3,075	2,591	0.23
Millet	1,803	1,914	2,339	2,038	0.20
Sorghum	363	388	661	482	0.40
Maize	1	3	4	3	0.64
Rice	72	57	71	67	0.14
Imports	247	173	181	199	0.21
Millet	47	31	15	30	0.56
Sorghum	15	5	2	7	1.17
Maize	76	56	51	60	0.31
Rice	41	37	42	40	0.26
Wheat	69	44	71	62	0.25
Net Supply	2,149	2,181	2,794	2,401	0.20
Millet	1,579	1,657	2,003	1,762	0.19
Sorghum	323	335	563	417	0.39
Maize	77	59	55	63	0.30
Rice	101	86	102	97	0.15
Wheat	69	44	71	62	0.25
Net Supply/capita (kgs)	263	224	237	241	0.14
Millet	193	170	170	177	0.14
Sorghum	40	34	47	41	0.26
Maize	9	6	5	7	0.40
Rice	12	9	9	10	0.23
Wheat	8	4	6	6	0.30
Net Imports/Supply	11.5%	8.1%	6.7%	8.7%	0.30
Millet	3.0%	1.9%	0.8%	1.8%	0.60
Sorghum	4.5%	1.6%	0.3%	2.0%	1.09
Maize	98.5%	94.6%	93.7%	95.5%	0.03
Rice	40.1%	42.5%	40.0%	40.8%	0.17
Wheat	100.0%	100.0%	100.0%	100.0%	0.00

Source: Calculated from FAO data.

Notes: Net supply calculated as production minus assumed losses of 15 percent plus net imports.

46. ***Supply and demand conditions in Nigeria, especially the northern regions, have a major influence on the prices and availability of staple food crops in Niger.*** Covering an area of 923,000 square kilometers and with a population of over 100 million, Nigeria produces significantly larger quantities of millet, sorghum, and maize than Niger. This is primarily due to the diversity of Nigeria’s agro-ecological zones: annual rainfall averages from 500 millimeters in the northern regions to 4000 millimeters in the southeast. As shown in Table 17, Niger’s average millet production in 2003 and 2004 accounted for 30 percent of total millet production in the two countries. Similarly, Niger’s sorghum production represented only 9 percent of total sorghum production in the two countries. Almost all of the maize produced is cultivated in Nigeria. Thus, Nigeria dominates the sub-regional supply of these cereals, and fluctuations in cereal supply and demand in Nigeria have an important impact on cereal supply and prices in Niger. While unofficial imports of sorghum and millet from Nigeria are relatively low, an analysis of millet supply, demand, and prices has suggested that millet imports from Nigeria may have reached 200,000 metric tons in 2004, equivalent to about 10 percent of total net millet supply in Niger (Dorosh, 2008a).

Table 17: Cereal Production in Niger and Nigeria, Average 2003-2004

	Millet	Sorghum	Other	Total
Niger	2.7	0.8	0.1	3.6
Nigeria	6.3	8.0	7.2	21.5
Total	9.0	8.8	7.3	25.1
Niger share	30.4%	8.6%	1.1%	14.3%

Source: Calculated from FAO data.

47. ***Unlike other countries in Sub-Saharan Africa, imported food aid has not played an important role in Niger’s total food availability since the mid-1990s.*** Between 1997 and 2007, Niger planned to use both imported food aid and food aid from local or triangular purchases³⁴. According to WFP (2005 b), approximately 29,000 metric tons of food aid are imported annually, comprised of rice (11,000 metric tons), wheat (4,000 metric tons),

³⁴ Transactions by which a donor provides commodities purchased in a third country as food aid to a final recipient country.

cereals (14,000 metric tons), and other commodities such as vegetable oil and soy-fortified bulgur wheat (SFSB). Using official import data, this suggests that food aid represents less than 20 percent of total cereal imports and 1 percent of total cereal net availability. Overall, emergency and development food aid programs are managed and executed by a variety of governmental, non-governmental, and international organizations. Food aid programs between 2000 and 2007 were implemented by NGOs, including *Action Contre la Faim* (ACF), Africare, CARE, Catholic Relief Services (CRS), Helen Keller International (HKI), Concern Worldwide, *Médecins sans Frontières*, and Plan-Niger; international organizations, including UNICEF and the World Food Programme (WFP); and the Government of Niger, including the Food Crisis Cell (*Cellule de Crise Alimentaire* or CCA), the National Body for the Prevention and Management of Food Crises (*Dispositif National de Prévention et de Gestion des Crises Alimentaires* or DNP-GCA), and the Office of the Food Products of Niger (*Office des Produits Vivriers au Niger* or OPVN).

48. ***Food aid in Niger is used for both direct distribution programs and for monetization.***³⁵ Since the mid-1990s, food aid for distribution has been used in three types of programs in Niger: emergency response,³⁶ safety net, and food for work (FFW).³⁶ Emergency response programs have typically been of short duration (for example, during the year of the shock or the localized food crisis) and have included general distribution, nutritional rehabilitation of children under the age of 5, and the subsidized sales of cereals. Safety net programs have typically provided food aid to extremely vulnerable people, such as the elderly, people living with HIV and AIDS (PLHAs), and orphans. Finally, FFW programs

³⁵ Monetization is defined as “imported food aid sold commercially to local buyers in order to generate proceeds for longer-term development programs.” Between 2000 and 2007, the primary monetization programs were financed by USAID Title II and the US Department of Agriculture (USDA). During this period, four NGOs (including Africare, CARE, CRS, and HKI) imported rice and wheat for sale to local buyers, using the proceeds to implement multi-year agriculture and health programs in Agadez, Dosso, Tahoua, Tillabéri, and Zinder. These imports have averaged 3,000 metric tons of rice and 5,000 metric tons of wheat on an annual basis.

³⁶ There has also been a relatively small school feeding program in Niger for nomadic populations since 2000/2001. However, its geographic coverage has been limited, starting with 250 schools in 2001 and rising only to 500 schools by 2005.

have provided food aid to communities during the hungry season in return for their labor on a community-based infrastructure project, such as health centers, *demi-lunes* in community pastures for soil restoration, or farm-to-market roads. FFW projects have typically been multi-year projects that have been one part of larger sectoral programs, although they have also been used as part of emergency response efforts during drought years.³⁷ In a few cases, safety net programs and nutrition recuperation programs have also existed on a multi-year basis. The sale of staple cereals at subsidized prices has been primarily executed by the Government of Niger (via the OPVN and the CCA) using locally purchased commodities (see Chapter 4).

AGRO-FOOD MARKETS AND PRICES

Market Structure

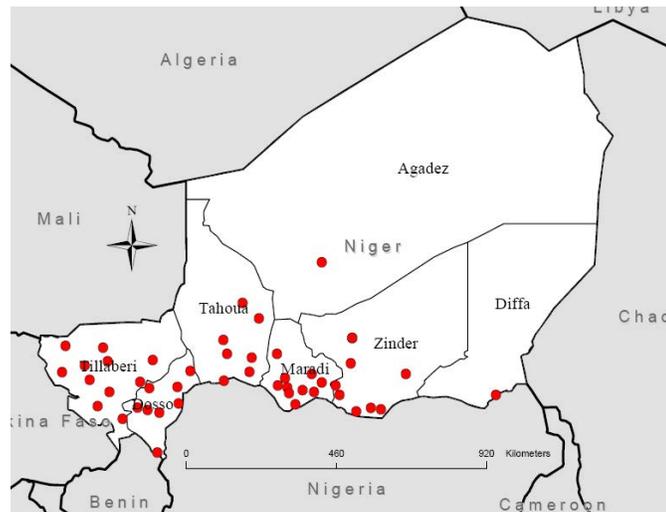
49. ***The performance of agro-food markets affect households' economic access to food products.*** In light of the importance of staple cereals (millet and sorghum) for producers' and consumers' welfare, the structure, conduct, and performance of food production and marketing has important implications for food security in the country. Staple food crops (millet, sorghum, cowpeas, and rice) are traded through an extensive system of traditional markets, which run the length of the country.³⁸ Figure 9 shows the location of key grain markets in the country. Cereal markets in Niger are classified into four categories depending upon their primary role and geographic location: (i) collection; (ii) consumer; (iii) wholesale; and (iv) cross-border. The average distance between these markets is 350 kilometers, but distances between the markets in which trade takes place ranges from 10 to 900 kilometers. While the density of grain markets varies considerably by department, market

³⁷ During previous drought years, some NGOs also implemented emergency FFW projects in targeted villages. In these cases, food aid was provided during the hungry season for one year only to households who constructed community-based infrastructure, such as a road or a well.

³⁸ According to a census of grain markets conducted in 2006 and 2007, there are over 2,000 grain markets in the country. The number of traders per market ranges from 38 to over 350 (Aker, 2007).

density appears to be evenly distributed throughout the country, although there are very few markets in the northern pastoral zones (Agadez, northern Tahoua, and Diffa).

Figure 9: Key Grain Markets in Niger



50. ***A variety of market actors are involved in moving cereals from producers to consumers.*** These include: (i) farmers, who produce, sell, and buy millet, sorghum, and cowpeas; (ii) traders, including retailers, intermediaries, semi-wholesalers, and wholesalers; (iii) transporters, who are responsible for moving goods via truck, car, or boat; (iv) rural and urban consumers, who purchase the final goods in rural or urban markets; and (v) state structures, such as OPVN and the CCA. Cereals are first produced by farmers, who sell their production directly to intermediaries located in the village or in the market. The intermediaries in turn sell directly to semi-wholesalers and wholesalers in local retail or wholesale markets. These wholesalers sell to other traders, such as wholesalers located in other markets or retailers located in the same market. Wholesalers can also sell to consumers directly, although usually do not sell in small quantities (for example, in bags of less than 100 kilograms). Retailers in turn sell directly to both urban and rural consumers. Retailers represent the highest percentage of all traders (57 percent) in the market,

followed by wholesalers (16 percent), semi-wholesalers (15 percent), and intermediaries (10 percent) (Aker, 2007).

Government Agro-Food Policies

51. ***The role played by the Government of Niger in cereal production and marketing has been significantly reduced since the 1990s.*** In the two decades following independence (1960), the Government of Niger was involved in all aspects of cereal production and marketing. During this time, the OPVN was established in order to manage the purchase and sales of staple cereals (millet and sorghum) and functioned as a state-owned monopoly until 1984. With the implementation of the government's Structural Adjustment Program (SAP) in the 1990s, however, the Nigerien cereal market became increasingly liberalized. By the mid-1990s, the OPVN's role was reduced to monitoring the food security situation within the country and managing the country's strategic grain reserves. These reforms had important implications for the functioning of Niger's agro-food sector, particularly in terms of pricing, marketing, and agricultural development and investment (Terpend, 2006). Between 2000 and 2004, the OPVN was responsible for distributing subsidized food to the population, including vulnerable groups.

52. ***In contrast with the pricing support policies of the 1960s and 1970s, food prices in Niger are now determined by market forces.*** Domestic cereal prices are influenced by a host of factors, such as domestic supply and demand, commercial imports, import taxes and tariffs, regional trade patterns, and market structure. Traders are free to import cereals and export cowpeas and livestock, provided that they are registered and respect all trading and tax procedures. However, depending upon the level of domestic cereal production in a

particular year, the government may regulate trade flows by limiting either exports or imports of specific commodities.³⁹

53. ***Trade tax regulations in Niger are officially aligned with the rules of the West Africa Economic and Monetary Union (WAEMU in English or UEMOA in French⁴⁰)***. The free exchange of goods and services is permitted within and among West African countries. Within the WAEMU, there are no official export taxes for local products traded among member countries. Nevertheless, import and export tax regulations in Niger are integrated into the rules of UEMOA. Customs duties still exist for imports of cereals originating from countries outside of the UEMOA area, namely Nigeria and Ghana.⁴¹

Grain Prices and Market Integration

54. ***Millet and sorghum prices in Niger vary significantly from month to month and from year to year***. Table 18 shows average grain prices in Niger by region, and Figure 10 shows average monthly grain prices in Niger and in the sub-region (including Benin, Chad, and Nigeria) between 1996 and 2006. High-production years in Niger were followed by relatively lower prices (1998/1999, 1999/2000, and 2003/2004), and low-production years are followed by relatively higher prices (1997/1998, 2000/2001, and 2004/2005). Grain price levels in Niger closely follow those in Benin and northern Nigeria (Illéla, Jibia, and Mai Adua) but not those in Burkina Faso and Chad. In addition, the seasonal variation of millet prices is also important. Millet prices range from 20 to 89 percent higher in August (the

³⁹ While the free exchange of goods and services is permitted within and among West African countries (including between Niger and Nigeria), the Government of Niger may attempt to control cereal exports or imports in particular markets during low production years. Most traders interviewed during the 2005-2007 market survey (CARE International et al. 2007) believe that the exportation of millet and sorghum is prohibited.

⁴⁰ The West African Economic and Monetary Union (WAEMU, or UEMOA in French) is an organization of 8 West African states, established to promote economic integration among countries that share the CFA franc as a common currency.

⁴¹ During the trader survey (Care International, CRS, HKI and WVI, 2007) in cross-border markets, specifically those in Nigeria, traders cited excessive official and unofficial import taxes on millet and sorghum as a constraint to marketing between the two countries.

hungry season) than in October (the harvest period), with an average intra-seasonal price difference of 44 percent. Millet prices increased by 89 percent between October 2004 and August 2005 and by 75 percent between October 2000 and August 2001.⁴² Markets are therefore subject to relatively high price instability, which suggests that households and traders are subject to high to inter- and intra-annual annual price risks.

Table 18: Average Grain Prices in Niger, Nigeria and Chad, 1996-2006 (CFA/kg)

Variable	Obs	10-year mean	Std. Dev.
Average Prices (CFA/kg)	120	145.98	40
Niger (Region)			
Diffa	120	167.51	47.88
Dosso	120	151.58	40.33
Maradi	120	124.20	38.50
Niamey	120	143.36	30.90
Tahoua	120	155.99	42.39
Tillaberi	120	158.10	41.62
Zinder	120	129.02	41.82
1997/1998 Prices	12	173.25	33.35
2000/2001 Prices	12	160.76	36.89
2004/2005 Prices	12	194.10	53.40
Benin (Malanville)	81	127.17	39.07
Burkina Faso (Kantchari)	47	125.95	32.17
Chad	120	156.18	44.06
Nigeria	81	137.03	40.49

Source: SIMA.

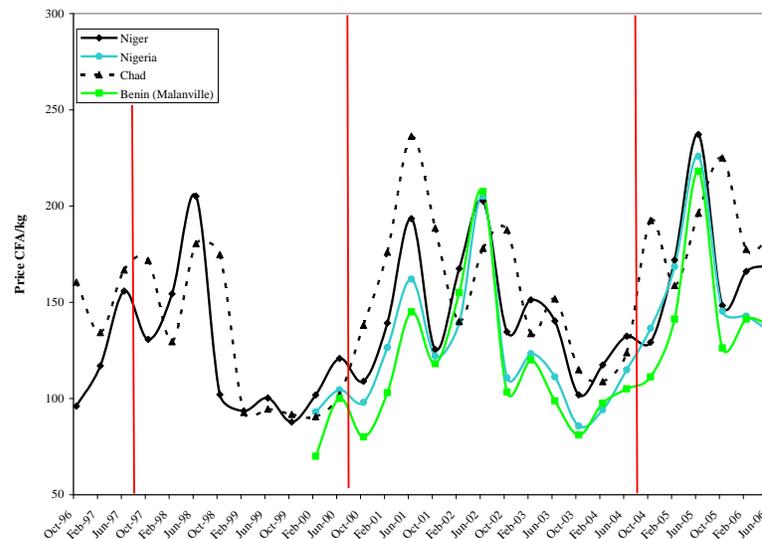
Note: Prices are deflated by the consumer price index.

55. ***Although grain markets in Niger are relatively integrated, this varies by geographic region and by year.*** Staple food crop markets in Niger are somewhat integrated, with an average correlation coefficient of 0.55 for all markets between 1996 and 2006. This is well below the price correlation coefficients that have been computed for other agricultural products in the developing world (Timmer, 1974). Nevertheless, the degree of market integration varies from year to year, with higher levels of integration during low production years. The degree of integration between Niger's markets and those

⁴² During non-drought years, prices increase by 10 and 20 percent between the harvest and hungry periods.

in its border countries (Benin, Burkina Faso, Chad, and Nigeria) follow the same pattern. On average, the degree of market integration between Chad and Niger is small, averaging 0.25. Similarly, the degree of integration between Burkina Faso and Niger is also quite limited, averaging 0.47 between 1999 and 2006. The highest degree of integration occurs between Niger, Benin, and Nigeria, with correlation coefficients averaging 0.65. On average, grain markets in Niger are more integrated with Benin and Nigeria during drought years, with the highest degree of integration having occurred during the year of the 2005 food crisis.

Figure 10: Grain Prices in Niger and Key Regional Markets, 1996-2006 (CFA/kg)



Source: Aker (2007).

56. ***Grain prices in Niger respond to supply shocks, and price movements in surplus regions within Niger and regional markets are useful for predicting grain price changes in Niger*** (using Granger causality forecasting tests). Grain prices in Niger follow well-defined paths: they start in production centers (such as Maradi and Zinder) and then spread across the country. This means that grain prices in Niger respond to supply shocks (such as droughts or locusts) rather than demand shocks. Figure 11 shows the percentage of times that a market is useful for predicting price changes in other markets in Niger. The map shows that markets located in surplus regions (the southern and eastern parts of the

country, such as Maradi, Zinder, and southern Dosso) are useful for predicting price changes in other markets. In addition, the cross-border markets of Malanville (Benin) and Jibia, Illela, and Mai-Adua (Nigeria) predict price changes in over 75 percent of the markets in Niger.⁴³ Notably, price changes in the capital city, Niamey, are not useful for predicting price changes in Niger. Overall, this means that prices in production regions can be useful in predicting price changes in Niger. This also suggests that markets located in deficit regions – primarily Tillaberi, Tahoua, and Diffa – follow price movements in other markets more frequently rather than reflecting just local production.

57. ***In addition to supply shocks, grain market performance in Niger is partially determined by access to information.*** The access that market actors (farmers and traders) have to price information has an important impact on grain market performance in Niger. Between 2001 and 2007, the introduction of cell phone towers throughout Niger enabled traders to search for price information over a larger number of markets, allowing them to move commodities to markets with excess demand. This, in turn, reduced grain price dispersion between markets and lowered average grain prices (Aker, 2008).

58. ***Niger needs to import grain, but arbitrage opportunities for imports vary both between and within years.*** During most years, import parity prices for cereals (millet and sorghum) from northern Nigeria (Illela, Jibia, and Mai Adua) are typically higher than domestic millet prices from October until May, meaning that there are no incentives to import (Figure 12). This pattern changes between June and August when domestic prices in Niger are *higher* than import parity prices, implying that there are positive spatial arbitrage opportunities. During this period – which coincides with the hungry season in Niger –

⁴³ Kano, an important grain market located in northern Nigeria, does not appear to be useful in forecasting millet prices in a significant number of markets in Niger as it only “predicts” price changes in 29 percent of markets. However, price data for Kano are only available for 2003-2007, a relatively short time series for forecasting tests.

traders typically import grain from Nigeria.⁴⁴ This pattern was markedly different during the 2004/2005 marketing season.

Figure 11: Key Forecasting Markets for Niger

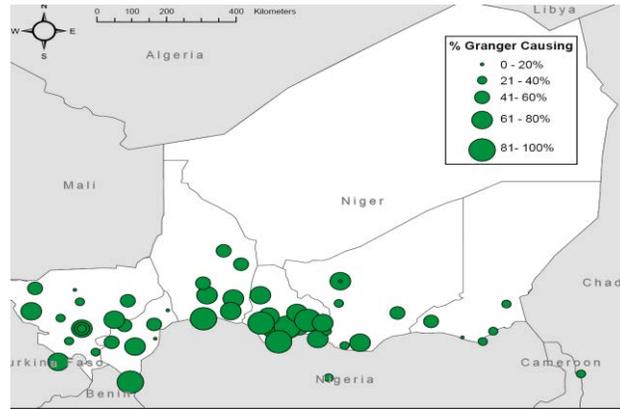
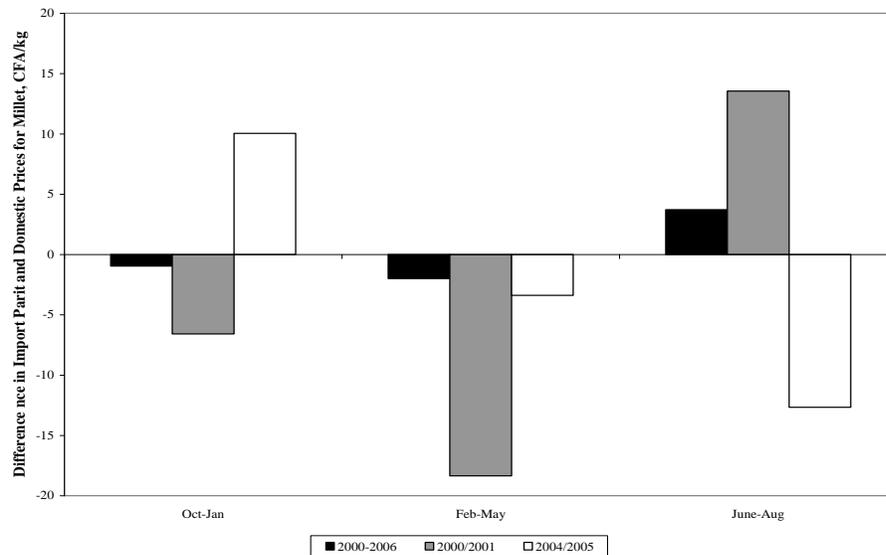


Figure 12: Comparison of Millet Prices in Niger and Nigeria



⁴⁴ In Niger's trade with Burkina Faso and Benin, net marketing margins are consistently positive, and there are few intra- and inter-annual fluctuations.

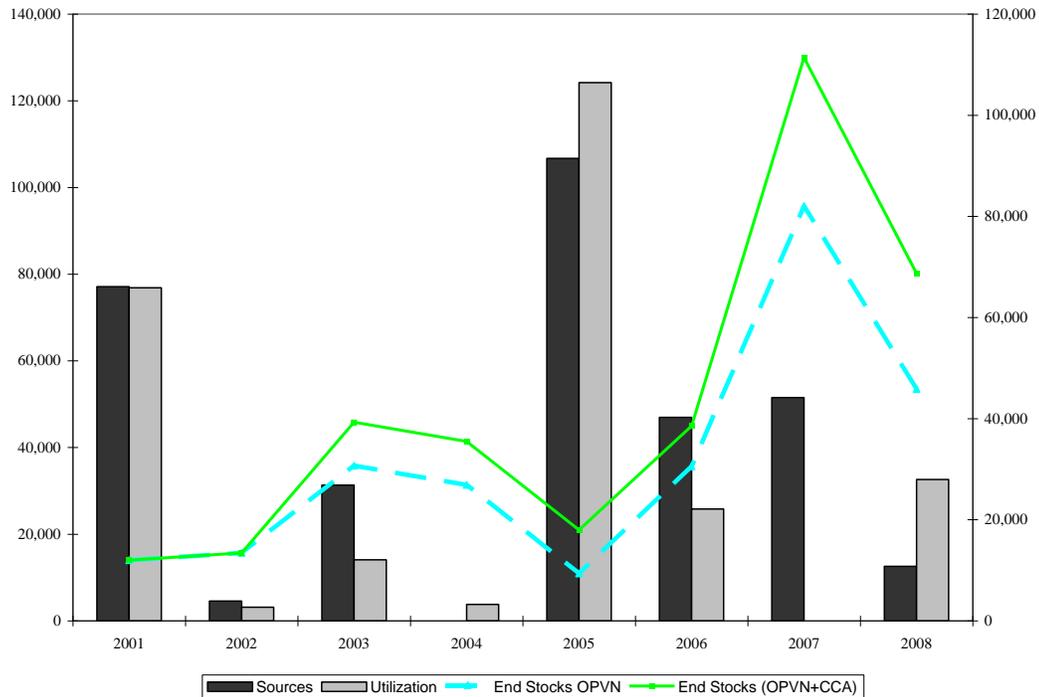
CHAPTER 4: GOVERNMENT INSTITUTIONS AND PROGRAMS AND RESPONSES TO THE 2005 FOOD CRISIS

Although the need to support poor and food-insecure households is substantial, safety net programs in Niger are small, designed for emergency food crises, and receive limited government funding. The food crisis in Niger in 2005 caught national policymakers and the international community by surprise. Estimates of national food production during the 2004 harvest suggested only a 12 percent decline relative to the 10-year average and gave little cause for concern. However, predictions of a large-scale food crisis did not occur until April 2005. In one sense, the major cause of the crisis was the extremely low level of household income, which makes households vulnerable to serious malnutrition even during normal production years. During 2004/2005, two additional shocks precipitated the food crisis: (i) drought and corresponding production shocks in 2004, which lowered household-level production and incomes for the 2004/2005 marketing season; and (ii) a sharp rise in food prices in May 2005, which reduced access to food for all net buying households. The response of the government and the international community (donors, NGOs, and the WFP) was primarily using food aid for emergency distribution, FFW programs, the sale of approximately 40,000 metric tons of cereals at subsidized prices, and CFW programs. Despite of these efforts, in some of the worst-affected regions the gross and child mortality rates reached well above international thresholds for humanitarian crises. Understanding the factors that contributed to the 2005 food crisis is essential for preparing for and responding to future food crises.

INSTITUTIONAL MECHANISMS FOR RESPONDING TO FOOD CRISES

59. ***Since the Sahelian famines of the 1970s, a variety of governmental and non-governmental institutions have been established to prepare for and respond to food crises in Niger.*** The Office of the Food Products of Niger (*Office des Produits Vivriers du Niger* or OPVN) was established in order to manage the purchase and sale of staple cereals (millet and sorghum) in the country. Between 1990 and 1998, the OPVN focused on monitoring the food security situation and managing the country's strategic grain reserves (defined as the stocks held at the end of the calendar year). During this time, Niger also drastically reduced its strategic grain reserves, previously an important part of the country's emergency response strategy. In 1992, for example, Niger's strategic grain reserves consisted of 85,000 metric tons but this had fallen to 12,000 metric tons by 1998. Since 2000, the OPVN's strategic grain reserves have averaged 27,000 metric tons.

Figure 13: Quantities of Food Aid Obtained and Distributed by the OPVN and the CCA during 2001-2007



Notes: “Sources” refer to the total quantity of food aid obtained (as foreign aid or other sources) by the OPVN and the CCA during a particular year. “Utilization” refers to the total quantity of food aid distributed by both agencies. End stocks are the quantities of food aid remaining at the end of the fiscal year.

In 1998, the government created a new structure for managing food crises, the National Body for the Prevention and Management of Food Crises (*Dispositif National de la Prévention et la Gestion des Crises Alimentaires* or DNP/GCA). The objective of this new structure was to reduce food insecurity by ensuring better coordination among the various organizations. The DNP/GCA, overseen by a National Consultation Committee (*Commission Mixte de Concertation* or CMC) is responsible for overseeing and coordinating: (i) the interventions related to the country’s strategic grain reserves and (ii) donor funds provided to governmental institutions. Under the broader umbrella of the CMC, the four local government structures involved in the preparation of and response to food crises are: (i) the Food Crisis Cell (*Cellule de Crises Alimentaires* or CCA), which is primarily responsible for decision-making with respect to food crises; (ii) the Early Warning System (*Système d’Alerte*

Précoce or SAP), which is responsible for collecting and analyzing data on food insecurity at the local level; (iii) the OPVN, which is responsible for managing the country's strategic grain reserves; and (iv) the Agricultural Market Information System (*Système d'Informations sur le Marché Agricole* or SIMA), which are local market information systems for agriculture and livestock (see Box 4).

60. ***In addition to the DNP-GCA, there are a number of non-governmental and international actors involved in the prevention of and response to food crises.*** These include non-governmental organizations (such as Africare, Catholic Relief Services, CARE, and World Vision International), international bodies (the WFP, the Food and Agricultural Organization, and UNICEF), regional structures (such as the Permanent Inter-state Committee for the Fight Against Drought in the Sahel or CILSS), and donors (such as the European Union and USAID's Famine Early Warning Systems Network or FEWS NET). These institutions are all involved in the prevention, preparation, and management of responses to food crises. These organizations collaborate with the government in establishing famine early warning systems, executing activities to mitigate the effect of food crises, and responding to food crises once they occur.

Box 4: National Mechanism for the Prevention and Management of Food Crises in Niger: the *Dispositif National de Prévention et de Gestion des Crises Alimentaires* (DNPNGCA)

Since 1998, Niger's government and major food aid donors have managed a National Mechanism for the Prevention and Management of Food Crises in Niger (*Dispositif National de Prévention et de Gestion des Crises Alimentaires* or DNPNGCA). Its primary missions are: (i) to help the government to build up cereal and financial reserves to be used as food aid during crises and (ii) to implement actions supporting the population during food crises.

Management: The DNPNGCA is managed by the National Consultation Committee (CMC) of donors, which is responsible for: (i) defining the DNPNGCA's operational goals and (ii) handling the programming, coordination, and management of the resources allocated to prevent and mitigate food insecurity. The Prime Minister and his office represent the government on the CMC. The technical and financial partners (PTF) consist of 12 members including five from the EU (Germany, Belgium, France, Italy, and the European Commission); one from Europe outside the EU (the Swiss Confederation); two from outside Europe (Canada and the United States); and four United Nations bodies (UNDP, the WFP, the FAO, and UNICEF). A framework agreement, signed by the government and all 12 partners in 2005, defines the methods of operation for the DNPNGCA and the mechanism for using its resources. The CMC meets once a year to assess the status of the previous food security campaign and to outline the major lines for intervention for the coming year. It is supported by a Special Advisory Committee (*Comité Restreint de Concertation* or CRC). This is a technical organization with representation from the Prime Minister's cabinet and from the TFPs that negotiates and approves programs (unanimously), authorizes expenditures and manages the available funds, assesses the operations that have been implemented, and monitors the CMC's actions.

DNPNGCA Tools: The DNPNGCA has two tools:

1. *The National Reserve Stock (Stock National de Réserve or SNR):* The SNR is used only in years of national or regional crisis to implement a rapid response while awaiting the mobilization of international humanitarian and national solidarity aid. The SNR's optimal volume is 110,000 tons of cereals. The SNR is composed of:
 - The National Food Security Stock (Stock National de Sécurité or SNS): A physical stock of 80,000 tons of cereals (millet, sorghum, maize, and rice) stored in the warehouses of the OPVN. This stock is used to avoid the development of speculation that can result from implementing subsidized sales.
 - The Food Security Fund (Fonds de Sécurité Alimentaire or FSA): A financial reserve to purchase 30,000 tons of cereals in case of a major crisis and low national stocks. Purchase decisions are governed by a common agreement between the government and its partners and entrusted to the OPVN, which receives a lump sum remuneration of 10,000 FCFA per ton.
2. *The Common Donor Common Fund (Fonds Commun des Donateurs or FCD):* This fund is the first level of resources that can be used to finance actions responding to small food crises. This fund primarily finances actions for the prevention and moderation of crises (such as cereal banks, cash for work for soil reconstitution, subsidized cereal sales, and the targeted free distribution of cereals).

Primary DNP-GCA Bodies: Aside from the CRC, the other bodies are:

- The Food Crisis Unit (*Cellule de Crises Alimentaires* or CCA): This is the executive body of the DNP-GCA and is responsible for the implementation and monitoring of the programs retained by the CMC. The CCA (created in 1998) is primarily responsible for (i) ensuring the proper coordination of assistance programs; (ii) ensuring the proper operation of the DNP-GCA; (iii) assessing food aid needs; and (iv) keeping records of food aid received and actions implemented to moderate crises.
- The Early Warning System Coordination Unit (*Cellule de Coordination du Système d'Alerte Précoce* or SAP): SAP is responsible for collecting and processing information from various information systems such as SIMAgricole, SIMBetail, and the *Enquête permanente d'estimation des récoltes* (EPER), an agriculture production survey. Additionally, SAP monitors vulnerable areas on a monthly basis.
- The Office of the Food Products of Niger (*Office des Produits Vivriers du Niger* or OPVN): This is responsible for the storage and management of the National Reserve Stock and for the logistical management of food aid (the distribution and the commercialization of food aid, and the management of stocks).
- The Information Center: Attached to the Prime Minister's Cabinet, this is the distribution and communication body for the DNP-GCA.

Sources: Government of Niger and its FTPs.

Early Warning Systems

61. ***A variety of local, regional, and international famine early warning systems exist in Niger to collect, analyze, and disseminate information about possible food crises.*** These include the government's early warning system (SAP) and its Agricultural Market Information System (*Système d'Informations sur le Marché Agricole* or SIMA); the USAID-funded famine early warning system network (FEWS NET); international organizations, such as the WFP, UNICEF, and various community-based early warning systems established by international NGOs; and the Permanent Inter-state Committee for the Fight Against Drought in the Sahel (CILSS). In general, these systems use rainfall data, agricultural production, remote sensing, and market information (in other words, prices) to generate predictions about the food security situation in the country.

62. ***Despite significant effort and the availability of climatic, production, price, and food security data, these national, regional, and international early warning systems were unable to predict in an accurate and timely manner the magnitude, scope, and location of the food crisis in 2005.*** While some institutions warned of a food crisis in drought-affected regions as early as December 2004, these predictions were based primarily on data on drought and production shocks. In addition, even though the most vulnerable regions were identified in 2005, this process was not without problems because of two key factors:⁴⁵

- *Different conceptions of food insecurity and vulnerability.* In general, each organization – even among the early warning systems – uses its own framework for defining food security and vulnerability. While there is considerable overlap among these frameworks, there is no common understanding of these concepts among the different actors. Consequently, developing common and transparent early warning indicators is difficult.
- *Early warning system indicators exist, but there are no thresholds to trigger action.* Unlike malnutrition data – where there are clear thresholds for a crisis – there are no thresholds for the drought, production, or price data. Although considerable data are available in Niger – and the early warning system organizations (CCA, SAP, SIMA, and FEWS NET) do an excellent job of analyzing these data – the analyses focus on production and price trends, rather than threshold levels to trigger a crisis. Such thresholds are required in order to determine whether a crisis will occur.

⁴⁵ Government of Niger, Prime Minister's Office, EC, SAP/CG. *Situation Alimentaire dans les Zones Vulnérables* (May 2005).

CAUSES OF THE 2005 FOOD CRISIS

63. ***In 2004, Niger experienced a severe drought that contributed to a 12 percent reduction in cereal production relative to average production over the previous 10 years.***

Between January and June 2005, millet prices rose to a level that was 25 percent higher than the 10-year average, with the price of a 100 kilogram sack of grain representing approximately 37 percent of national per capita income during the height of the food crisis. By June 2005, an estimated 2.4 million Nigeriens were affected by severe food shortages, with more than 800,000 of these classified as critically food-insecure (FEWS NET, 2005). Although the 2005 food crisis was not of the scale of the 1968-74 or 1983-84 famines, the gross mortality rate reached 1.5 deaths per 10,000 per day in targeted regions, with a child mortality rate of 4.1 deaths per 10,000 per day (*Médecins sans Frontières*, 2005) (see Box 5). Both of these are above the threshold mortality rates used to define a humanitarian crisis.⁴⁶

⁴⁶ The crude mortality rate used to define a humanitarian crisis is one death per 10,000 people per day.

Box 5: History of Food Crises in Niger

During the first post-colonial decade, Niger succeeded in becoming food self sufficient due to low demographic growth rates, high rainfall, and acceptable crop yields from rudimentary agricultural systems. Until the mid-1960s, the cereal balance sheets were in excess: a cereal surplus of 49 kilogram per person per year was recorded between 1960 and 1965. However, by the late 1960s, the country registered an important food shortage during the agricultural season of 1968-1969.

In 1972 and 1973, food production dropped dramatically. The food shortage was estimated at about 400,000 tons in 1973. The main causes of these food crises were the lack of valorization of marketable agro-pastoral products, fiscal pressure, and the decline in cash crops. All of these factors combined with the effects of harsh climatic conditions resulted in the most serious food crisis that the country had faced since its independence.

During the 1976-1982 period, conditions were favorable (substantial uranium revenues, fiscal deficit reduction with the suppression of capitation taxes, increase in support to farmers, and favorable climatic conditions). Between 1975 and 1982, uranium replaced peanuts in terms of foreign currency injections into the development of the public sector. From 1982, the state disengaged from the market and production sectors. Producers were made responsible through sale and production co-operatives, and seeds and pesticide subsidies were eliminated.

In 1983-1984, the country faced a new food crisis as a result of the cumulative effects of the deterioration of climatic conditions, the structural adjustment policy, and the closing of the Niger-Nigeria border in 1983. Another food shortage comparable of that of 1973-83 took place due to a heavy drought.

In 1984-1985, the Nigerien farmers, who had never known a stable, sustainable and good food situation, again faced a big crisis. The need for food aid was estimated at 410,000 tons (in addition to imports of 125,000 tons).

In 1990-1991 and 1993-1994, Nigeriens also faced food shortages.

The 1996-1997 crisis, which is still remembered in the Zarma (western part of Niger) and the Haoussa (central part of Niger) regions, resulted from the severe drought in August 1996.

In 2001, Niger was part of a trans-regional food crisis, which was particularly severe in many regions due to depletion of both farmers' food stocks and national security food stocks (the national security stock dropped from 200,000 to 100,000 tons). Food was scarce in almost all regions. The price of a 100 kilogram bag of pearl millet reached CFA 25,000 in many regions of the country. Even neighboring countries such as Mali, Burkina Faso, and Nigeria were affected.

Even though the 2004-2005 crisis was not as severe as that of 1973-1984, it exceeded that of 1996-1997. One of the consequences of food crises is the cumulative increase in cereal imports. Since 1973, the importing of staple food (millet and sorghum) has considerably increased, but it is rice that constitutes the major part of the imported products (more than 50 percent of cereal imports).

64. ***As is the case with chronic and seasonal food insecurity in Niger, the causes of the 2004/2005 food crisis are multiple and complex.*** Although rural households in Niger are susceptible to a variety of risks, including droughts, floods, pest attacks, health epidemics, and economic shocks, not all of these shocks result in food insecurity or food crises. Whether or not the shock results in food insecurity depends on households' assets, risks, and risk management strategies. The inter-related factors that contributed to the food crisis in 2004/2005 included production and marketing factors that had an impact on food availability and market prices; the high level of poverty, low level of assets, and the limited household's income that limited access to food purchases; the population's poor health and sanitation, and, ultimately, delays in the relief response.

Domestic and Regional Food Availability in 2004/2005: Drought, Production Shocks, and Commercial Imports

65. ***The lower domestic food availability was a result of widespread regional drought and market prices.*** The food production decline was certainly an important factor, but staple food crop production was even lower in the 2000 drought year. Yet, according to the local early warning systems, a severe food crisis did not occur in 2000/2001.⁴⁷ Thus, it is important to consider other factors that contributed to the 2005 food crisis. These include the large number of departments affected by production shocks in 2004 (which dramatically reduced farm household incomes in these areas); production shocks in key forecasting markets in Niger and Nigeria; and increases in the quantities of food imported from neighboring countries (especially Nigeria) due to unfavorable marketing conditions. More specifically, the inter-related factors that contributed to the food crisis in 2004/2005 include the following:

⁴⁷ Although a severe food crisis did not occur in 2001, households did suffer from seasonal food insecurity during the hungry season (*soudure*) between May and August.

➤ **Factor #1: Drought contributed to a certain extent to the loss of production.**

Between 1996 and 2006, Niger experienced droughts in 1996, 2000, and 2004, with annual rainfall lower than one standard deviation from the mean (Nicholson et al, 2000). In 2000, 32 percent of departments experienced drought compared with 50 percent of departments in 2004. Nevertheless, staple food crop production was 10 percent higher in 2004 than in 2000. Total production of cereals (millet, sorghum, fonio, and rice) was estimated at 2.05 million metric tons in 2000 (195 kilograms per capita) compared with 2.63 million metric tons in 2004 (218 kilograms per capita). This suggests that drought is not perfectly correlated with levels of per capita grain production.⁴⁸

➤ **Factor #2: A higher percentage of departments was affected by drought in 2004.** In

2000, only 15 percent of the departments experienced a per capita decrease of more than 50 percent. By contrast, in 2004, over 25 percent of departments suffered a per capita decrease in grain production of more than 50 percent.⁴⁹ This means that the percentage of departments affected by production shocks – as opposed to national-level production – has an effect on market performance, grain prices, and food crises in Niger.

➤ **Factor #3: Key markets in both Niger and Nigeria were affected by drought in**

2004. In addition to the percentage of markets affected by drought, which markets are affected is also important. Since prices in Niger respond to supply shocks, drought in surplus-producing regions (such as Maradi and Zinder) will have a larger impact on price levels than drought in deficit regions (such as Tahoua and Tillaberi). In 2004, the markets affected by drought were key surplus-producing markets.

⁴⁸ There was no strong correlation between drought-affected and food crisis zones during the 2004/2005 marketing season. The correlation between food-insecure and drought-affected regions in 2004/2005 was 0.02.

⁴⁹ During non-drought years, fewer than 3 percent of all departments experience a per capita decrease in grain production greater than 50 percent.

Average (deflated) millet prices in these markets were 15 CFA per kilogram higher in October 2004 than in October 2000.⁵⁰ Therefore, while both total and per capita grain production were higher in 2004 than in 2001, price levels in key forecasting markets were 17 percent higher at the start of the 2004/2005 marketing season than in 2001. This suggests that monitoring prices on these markets during the 2004 harvest could have served as an indication of a potential food crisis.

- **Factor #4: Prices were higher in northern Nigeria, thus making it unprofitable to import.** Following the 2004 harvest, the FAO and WFP estimated that there would be a cereal “deficit” of 278,350 metric tons in 2004/2005, taking into account commercial imports.⁵¹ This prediction assumed that Niger would be able to import from its neighboring countries (Benin, Burkina Faso, Mali, and Nigeria) in order to reduce its cereal deficit. During most years, domestic millet prices in Niger are lower than prices in Nigeria from October until May. This pattern changes from June until August, when prices in Niger are *higher* than those in northern Nigeria. During this period, traders typically import grains from Nigeria.⁵² The situation during the 2004/2005 marketing season was markedly different. Figure 12 shows the millet prices in Jibia (Nigeria) and Maradi (Niger) for several years. Between October 2004 and May 2005, millet prices in Niger were lower than those in northern Nigeria, as is the case during most years. However, millet prices in Nigeria remained higher than domestic millet prices for the entire 2004/2005 marketing season. Regardless of the reasons for this, the impact is clear - it was not profitable for traders to import grains from Nigeria during the year of the food crisis (although it was profitable in 2001).

⁵⁰ The forecasting markets included those markets that Granger-cause more than 75 percent of markets in Niger: Gaya, Maradi, Guidan Roumdji, Tessaoua, Tounfafi, and Zinder (in Niger); Jibia, Illela and Mai Adua (in Nigeria); and Malanville (in Benin).

⁵¹ The norm used for cereal consumption by the Government of Niger is 240 kilogram per capita. This is based on a population-based weighting of the 200 kilogram per capita norm for nomadic populations and the 250 kilogram per capita norm for agricultural populations. In 2004, the FAO/CILSS/WFP mission adopted a norm of 239 kilograms per capita of dry cereals (millet and sorghum) and 20.5 kilograms per capita of wheat and rice.

⁵² In terms of Niger’s trade with Burkina Faso and Benin, its net marketing margins are consistently positive, and there are fewer intra- and inter-annual fluctuations.

While prices in Benin and Burkina Faso were lower than those in Niger during 2005, it is unclear whether sufficient quantities of grains could have been imported from these countries.⁵³

66. ***Simulations of the effects of the shortfall in Niger's food production in 2004-05 on market prices suggest that a decline in net imports was partly responsible for the huge spike in millet prices.*** If there had been no change in net trade in cereals in unofficial markets in 2004-05, the 26 percent decline in millet production in that year would have resulted in an estimated 39 percent increase in the average real market price of millet (Table 19).⁵⁴ The actual real price increase in Maradi in the October 2004 -September 2005 crop marketing year was even larger – 58 percent. This suggests that, in addition to the production shortfall, net availability was further reduced by a reduction in net imports, a conclusion which is consistent with interviews conducted with traders (Care International, CRS, HKI and WVI, 2007). The normal flow of informal sector millet imports from Nigeria is likely to be around 100,000 to 200,000 metric tons per year. The model simulations suggest that net imports may have fallen by 200,000 tons (equivalent to 10 percent of net millet supply or 1.98 million tons in 2003-04 and 15 percent of estimated net millet availability from production only in 2004-05). In combination with the 26 percent drop in millet production, a decline in net imports of this magnitude would have been enough to result in an increase in real millet prices of 56 percent, very close to the actual price increase in Maradi during this period.⁵⁵

⁵³ Although official import data is of dubious quality, there are several sources that suggest that the quantity of cereal imports fell dramatically during the first half of 2004/2005, particularly from Burkina Faso and Nigeria. WFP (2005 b) noted that the level of imports between October 2004 and June 2005 was 35 percent of the five-year average, 25,000 metric tons compared with 71,000 metric tons. This was not the case during the 2000/2001 marketing year.

⁵⁴ Note that the model simulations take into account the effects of lower household incomes in that year, which reduced market demand for millet.

⁵⁵ Because levels of net imports, demand parameters, and the extent of market integration are uncertain, these estimates can only provide a rough approximation of the effects of changes in production and net imports on market prices. See Dorosh (2008a) for sensitivity analysis regarding these assumptions.

Table 19: Simulated Price Effects of Production Shock and Net Imports, 2004/05

	2003/04	Sim 1: Production Shock Only 2004/05	Sim 2: Production Shock and Lower Imports 2004/05	Sim 3: Sim 2 with Cross- Price Effects 2004/05
Production (mn tons)	2.745	2.038	2.038	2.038
Production Shock	—	-26%	-26%	-25.8%
Net Production Change (mn tons)	—	-0.460	-0.460	-0.460
Net Trade (mn tons)	0.200	0.212	0.012	0.012
Total Supply (mn tons)	1.984	1.537	1.337	1.337
Change in Supply (percent)	—	-22.6%	-32.6%	-32.6%
Per capita consumption (kg/person)	147.0	113.8	99.0	99.0
Simulated Real Price Change (percent)	—	39%	56%	0.618
Actual Real Price (Maradi, October-Sept)	—	58%	58%	0.578

Source: Dorosh, 2008a.

Access in 2004/2005: Incomes, Grain Prices, and Cereal-Livestock Terms of Trade

67. ***The drought and subsequent production shock in 2004 not only reduced domestic supply but also affected households' purchasing power.*** The drought reduced households' production of staple food and cash crops (such as cowpeas), thereby resulting in lower household incomes for the 2004/2005 marketing year. In fact for the country as a whole, a 0.6 percent drop in real GDP (a proxy for the change in total household incomes) and a 3.3 percent increase in the population implied a 3.9 percent drop in per capita incomes in 2004/2005.

68. ***Grain price increases in 2004/05 were greater than during the 2000/01 drought, suggesting a sharper decline in household access to food for net food purchasers.*** Average grain prices in 2004/2005 were 25 percent higher than the 10-year average. By contrast, prices during the 2000/2001 marketing season were only 12 percent higher than the 10-year average. In addition, grain prices in food crisis regions were 8 percent higher than in non-crisis regions (Table 20). Although a higher percentage of markets in food crisis regions

were affected by drought, the regions were similar with respect to most other characteristics (Aker, 2007).

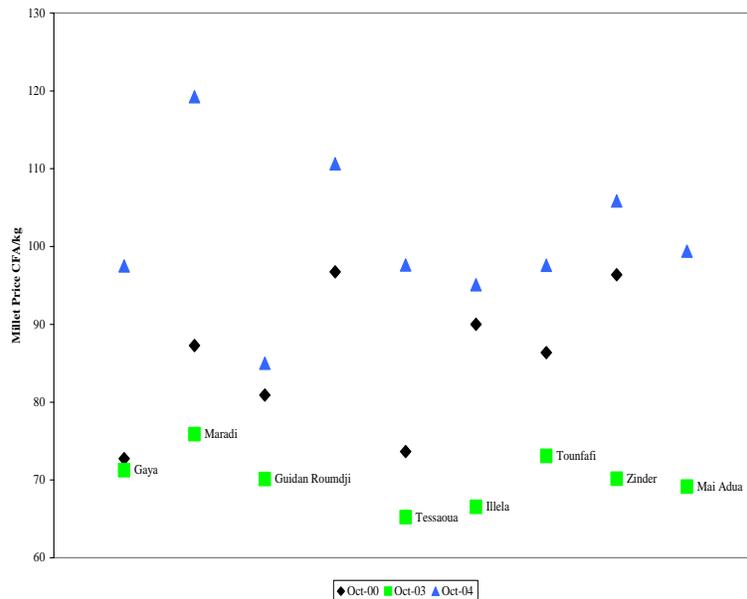
Table 20: Grain Prices (CFA/kg) by Food Crisis Region in Niger, 2004/2005

	Food Crisis Regions		Non-Food Crisis Regions		Difference in Means	Difference in Distributions	
	Mean (s.d.)	Obs	Mean (s.d.)	Obs	s.e.	D-statistic	p-value
Price dispersion between markets (CFA/kg)	29.6 (22.7)	1392	24.99 (19.7)	3828	4.602 ^{a/} (1.6)	0.0872	0
Grain Price (CFA/kg)	164.96 (43.4)	183	151.8 (39.0)	155	13.10 ^{a/} (6.63)	0.148	0.051

Notes: Data from SIMA.

a/ Significant at the 1 percent level. All prices are in 2001 CFA.

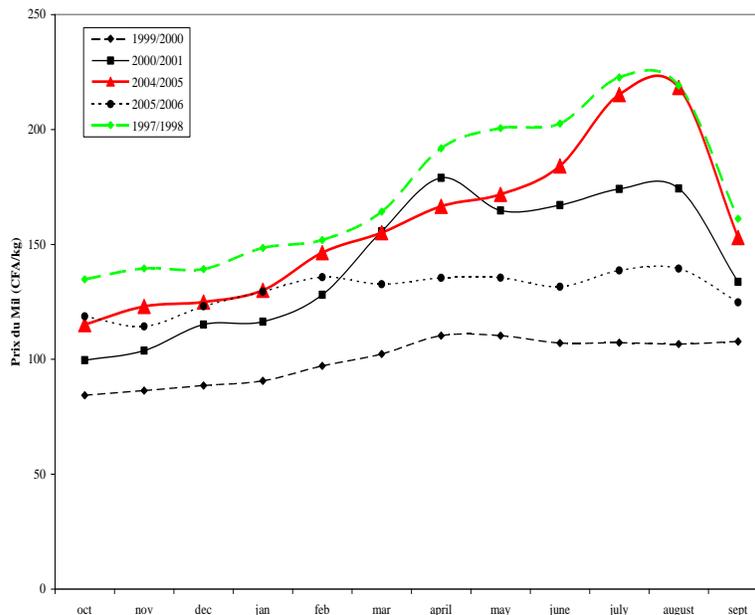
Figure 14: Grain Price Levels of Key Forecasting Markets during the Harvest Period



69. ***Although grain prices during the 2004 harvest were higher than in 2000, they initially followed a similar pattern to that of other drought years. However, prices increased significantly during the last four months of the 2004/2005 marketing season.***

Figure 15 shows the seasonal price change for cereals in domestic and cross-border markets in Niger between 1999 and 2006. The greatest intra-seasonal price increase occurred in 2004/2005, which was the year of the food crisis. During that year, millet prices increased by 89 percent between the harvest period (October) and the hungry season (August). In comparison, prices only increased by 75 percent during 2000/2001. Interestingly, prices in 2004/2005 followed a similar pattern to that of the 2000/2001 marketing season until May 2005, whereupon they increased significantly and stayed at this level until the end of the marketing season. This period also coincided with the height of the food crisis.

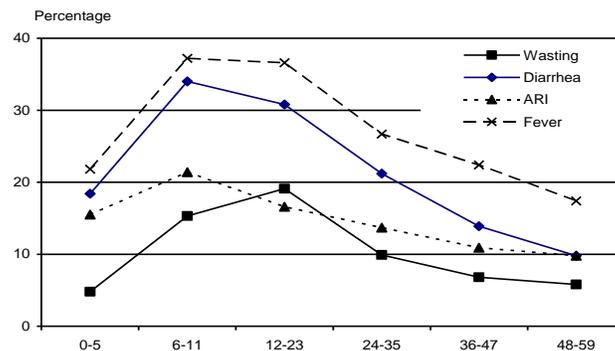
Figure 15: Intra-Seasonal Change of Millet Prices by Year



Use of Food Stocks in 2004/2005: Diseases, Health Services, and Behavior

70. ***Although the immediate causes of the 2004/2005 food crisis were related to drought, production shocks, and price increases, the situation was exacerbated by structural factors, especially those related to the poor health and nutritional status of the Nigerien population.*** Poor nutritional outcomes are determined not only by food intake but also by a variety of other factors, including infectious diseases and the care and management of these diseases. Based upon the data from targeted health and nutrition surveys in 2005 (carried out by HKI, *Médecins Sans Frontières*, and UNICEF, among others), there is little to suggest that the 2005 food crisis was due to a health shock, such as an outbreak of meningitis, malaria, typhoid, or other diarrheal diseases. The DHS/MICS survey of 2006 provides important information on the health and nutritional status of the population.

Figure 16: Distribution of Children with an Infectious Illness and Acute Under-nutrition, by Age Group



Source : EDS et MICS (2006)

71. ***Infectious diseases, particularly those associated with limited access to potable water and the absence of health-seeking behavior, are of particular concern in Niger.***

Infectious diseases affect the growth and nutritional well-being of young children. Figure 16 shows the relationship between infectious diseases and under-nutrition (wasting) in Niger

by age group. The relationship between the two is clear: (i) a sick child loses weight as a result of appetite loss, reduced nutrient absorption, and the need for higher energy to fight off the disease; and (ii) a malnourished child has lower immunity, therefore is at higher risk of falling ill and getting more severe infections. Reduced consumption and absorption result in under-nutrition.

72. ***While there is no evidence that child care practices in households significantly changed during the 2004/2005 food crisis, limited access to sufficient quality and quantity of food exacerbated the poor health and nutritional status of the population.*** The duration and severity of a child's illness is partly determined by preventive practices and child care once the child becomes ill. According to the DHS/MICS survey of 2006, the child care practices followed by families during illness are poor. Only 36 percent of children under 5 suffering from diarrhea were given more fluids than usual, only 29 percent of children were treated with an oral rehydration therapy, and only 6 percent were offered more food than usual. In addition, only 13.5 percent of infants aged 0 to 6 months were exclusively breastfed, an important protective measure to avoid exposure to pathogens (see the 2006 DHS/MICS survey).⁵⁶

RESPONSES DURING THE FOOD CRISIS

73. ***In 2004/2005, a variety of governmental, local, and international organizations responded to the food crisis.***⁵⁷ These interventions involved: (i) food-based programs, such as the free distribution of food or therapeutic feeding programs; (ii) food-for-work programs (FFW); (iii) the sale of cereals at subsidized prices; and (iv) other interventions,

⁵⁶ Infant and child care and feeding practices are often closely associated with teenage motherhood, short birth intervals, and maternal mortality. While data on health behavior and motherhood status are rare, maternal mortality in Niger is estimated at 1,600 maternal deaths per 100,000 live births, one of the highest maternal mortality rates in the world (2006 DHS/MICS).

⁵⁷ NGOs that have implemented food aid programs between 2000 and 2007 include *Action Contre la Faim*, *Africare*, *CARE*, *Catholic Relief Services (CRS)*, *Helen Keller International (HKI)*, *Concern Worldwide*, *Médecins sans Frontières*, and *Plan-Niger*; international organizations include *UNICEF*, the *WFP*; and the *Government of Niger*, including the *CCA*, the *DNPGCA*, and the *OPVN*.

such as cash-for-work (CFW) programs and seed vouchers and fairs (SVF) programs. In spite of these efforts, in some of the worst-affected regions the gross mortality rate and child mortality rates rose well above international thresholds for humanitarian crises.

- *Food-based Programs.* During the 2005 food crisis, food aid resources were used in two types of programs: vulnerable feeding programs and cereal banks. Vulnerable feeding programs during the crisis consisted of: (i) general distribution programs, which provided general rations to entire communities, regardless of gender, age, or nutritional status; and (ii) therapeutic feeding programs, which involved providing intensive curative care to severely malnourished recipients, primarily children under the age of 5.⁵⁸ Finally, in some communities, food aid was provided to replenish the stocks of existing cereal banks or new cereal banks were created (in addition to an initial stock).
- *FFW Programs.* During the crisis, FFW programs provided food (usually to all households in the community) in return for work on community-based infrastructure projects, such as half-moons (*demi-lunes*) in community pastures or farm-to-market roads.
- *Cereal Sales at Subsidized Prices.* Along with community-based interventions targeted to individual households, the government also organized the sale of cereals at subsidized prices during the 2005 crisis. The government sold approximately 40,000 metric tons of subsidized cereals in Niamey and other regions between February and June 2005 (WFP, 2005 b), with 12,750 metric tons sold between February and April of 2005 and 30,000 metric tons sold between April and May of 2005. Both of these sales used food aid resources.

⁵⁸ The establishment of centers for therapeutic feeding should be considered when the rate of malnutrition among under-5s exceeds 10 percent and the capacity of existing facilities is exceeded.

- *Other Emergency Response Programs.* In addition to food-based interventions, two other types of emergency interventions were implemented during the 2005 crisis: cash-for-work (CFW) programs and seed vouchers and fairs (SVFs). The government and the International Rescue Committee (IRC) both implemented CFW programs in targeted areas that were based on the FFW approach. Community members were provided with cash payments in return for their labor on community-based infrastructure projects. Additionally, the CRS implemented SVFs in particularly food-insecure areas. Participants were provided with vouchers (worth a specific amount) to purchase the seeds, with the seed sellers being farmers and/or traders in the area. The primary idea behind the SVFs was to mitigate the medium-term impact of the food crisis by providing households with seeds for the next harvest. However, rather than importing seeds, the seed fair sought to facilitate exchanges between buyers and sellers.

74. ***Food distributed and sold during the food crisis came from two primary sources: imported food aid, mainly from the US and the EU and local and triangular purchases, with the latter coming from Nigeria.*** Although quantitative data on the location, magnitude, timing, and price of these purchases are not available, the largest local purchase appears to be the Government of Nigeria's purchase of 40,000 metric tons between February and -May 2005. The WFP purchased 5,800 metric tons of cereals locally in 2004/2005, including 3,800 metric tons of millet in October 2004 and 2,000 metric tons of imported rice in July 2005. In addition to these local purchases, the WFP also bought approximately 10,500 metric tons of sorghum in Nigeria. Several other NGOs also acquired food aid via local and triangular purchases in 2004/2005, although the quantities and locations of these purchases are difficult to verify. Nevertheless, these quantities appear to be relatively small in magnitude (in other words, less than 1,000 metric tons).

75. ***Understanding the impact of local purchases and developing guidelines and criteria for using local or triangular purchases as compared to imported food aid, is an important policy concern for Niger.*** The impact of these local and triangular purchases on domestic supply and food prices in Niger is difficult to measure without detailed information on their location, magnitude, and timing. If the local purchases took place in key “forecasting” markets in Niger or Nigeria – such as Maradi, Jibia or Mai Adua – and significant quantities were involved, then the impact on supply and hence local prices may have been substantial.

76. ***The criteria for targeting vulnerable regions to benefit from emergency programs were unclear.*** Due to the lack of explicit and transparent criteria (or thresholds) for determining a food crisis and for identifying vulnerable regions, the areas most affected by the food crisis may have not been reached in 2005. Although a list of vulnerable villages was first produced in May 2005, this initial list did not coincide with the qualitative and quantitative evidence observed by international and non-governmental organizations. This prompted considerable friction between the Government of Niger and the international community. Although numerous institutions attempted to update this information by conducting additional food security assessments, so far a list identifying the most severely affected regions during the 2005 food crisis is still not available.

GOVERNMENT SAFETY NET AND SOCIAL PROTECTION PROGRAMS

The mechanisms for preventing and responding to food crises discussed above represent only one of a range of interventions that comprise a social protection system. Social safety nets (safety nets for short) are non-contributory transfer programs targeted to the poor and to individuals vulnerable to poverty and to shocks. These programs have the simultaneous goals of: (i) providing assistance to households in poverty, thus reducing the impact of poverty and to helping to lift them out of poverty and also to helping households to face the impact of shocks; and (ii) reducing the negative effects of globalization, macroeconomic

shocks, and structural changes, thus contributing to more sustainable growth.⁵⁹ These are programs such as:

- Cash transfers or food coupons, targeted by category or by income level (examples include family allowances or social pensions).
- In-kind transfers, school meal programs, or supplements designed for mothers and children and also less frequently the distribution of ready-to-eat meals, school supplies, or uniforms. General price subsidies, often for food or energy, targeted to households.
- Employment through labor-intensive public works programs, sometimes called “workfare” (transfers that are conditional on recipients providing their labor for a specified period of time).
- Cash or in-kind transfers to poor households, subject to the recipients meeting specific educational or health conditions.
- Exemptions from paying fees for basic services, health services, education, public service, or transportation.

77. ***Social safety net programs in Niger have primarily been implemented by governmental, non-governmental, and international actors on an annual basis.*** These programs have included the subsidized sale of cereals, free food distribution, and, in a few cases, food or cash for work. In addition, there are a few safety net programs that help the poor to access health and education programs, such as school feeding programs and nutritional support.

⁵⁹ See Grosh et al (2008) for a complete description of social safety nets.

78. ***Although the need to support poor and food-insecure households is critical in Niger, government spending on food crisis safety nets represents only a small percentage of total government expenditure on social programs.*** Between 2000 and 2006, education represented the largest percentage (54 percent) of total governmental expenditure on social programs, followed by health (32 percent) and social safety nets (14 percent). These percentages remained relatively constant over that time period, with the exception of 2001 and 2005. In general, social safety net programs are a relatively small portion of the government’s total annual budget, representing between 1 and 5 percent of total expenditures between 2001 and 2006, compared to the more stable allocations for education (18 percent) and health (about 10 percent) (Table 21).

Table 21: Distribution of Safety Net Programs between 2001 and 2006 (percent)

	2001	2002	2003	2004	2005	2006
Total Percent of Government Budget	5.10	0.27	1.15	1.22	6.33	5.19
Within Safety nets						
Nutrition and Food-based Programs	3.6	34.1	7.5	53.1	14.5	34.1
Transfers and Public Works	0.1	3.0	7.3	8.0	5.3	12.9
Prevention and Management of Food Crises	95.8	53.6	60.3	19.5	79.6	50.5
Others	0.5	9.2	24.8	19.4	0.6	2.5

Sources: Official data and staff estimates.

79. ***Since the late 1990s, governmental safety net programs have been primarily used to help poor households respond to food crises, and most of the programs are financed by external resources.*** Between 2001 and 2006, more than 80 percent of the government’s safety net expenditures were used to prevent and manage food crises, with 67 percent of funding for these programs coming from external resources. Thus, in that period, 70 percent of total spending on safety nets – government and external – focused on food crises, with external financing accounting for the majority of spending (Table 22). While these data may exclude emergency and non-emergency food aid distributed by other non-

governmental and international actors during this time period, two things are clear: (i) the government has only limited resources available for safety nets and (ii) spending on safety nets strongly favors emergency responses, particularly food crises.

Table 22: Sources of Financing for Safety Nets, 2001-2006

	Recurrent budget	Investment budget				Grand Total
		Gov	External	Gov IPPTE	Total	
Nutrition and food aid	2.4	-	11.7	5.4	17.0	19.4
Transfers and Public Works (HIMO)	1.6	3.2	0.7	1.0	4.9	6.5
Prevention and management of food crises	-	3.2	67.1	-	70.3	70.3
Others	-		0.5	3.1	3.7	3.7
Total	4.0	6.4	80.0	9.5	95.9	100.0

Sources: Official data and staff estimates.

80. ***Since most safety net programs are implemented during food crises, they are managed by institutions responsible for food emergency interventions.*** A large percentage of safety net programs has been coordinated by the CCA and implemented by the CCA, the OPVN, and a variety of NGOs (Section 1). Table 23 shows the number of in-kind programs managed by the government by year and by type of program between 2001 and 2007. The CCA is primarily responsible for FFW and cereal banks, whereas both the CCA and the OPVN are involved in the sale of cereals at subsidized prices and in general and targeted distributions. Over the past seven years, the greatest quantities were distributed in 2000/2001 and 2004/2005, the years of drought. Therefore, during non-drought years, there were relatively few safety net interventions being implemented in Niger, despite the fact that over 50 percent of the population is food-insecure each year. The CCA and the OPVN depend on strategic grain reserves, imported food aid, and local purchases in order to obtain food aid. Between 2000 and 2007, approximately 30 percent of all food aid used in governmental safety net programs was obtained via local purchases.⁶⁰

⁶⁰ Although this is provided in the official figures, the percentage derived from local purchases appears to be greatly underestimated. This could be due to a different classification of local and triangular purchases. For

Table 23: Governmental (Emergency) Safety Net Programs, by Year and by Program

Year	Subsidized Sales (metric tons)	General distribution (metric tons)	Cereal Banks (metric tons)	Livestock Banks	CFW (CFA)	FFW (metric tons)	Seeds (metric tons)
2001	14,500	0	1 596	11	193,294,625	342	536
2002	3,140	0	0	0	0	0	305
2003	5,000	0	605	25	17,606,250	137	0
2004	0	0	0	0	0	0	0
2005	38,209	65,029	7,235	107	576,663,000	1,160	500
2006	10,130	10,606	4,080	0	1,891,814,958	0	0
2007	0	0	0	0	202,000,000	0	450
2008 (Planned)	7,000	11,561	0	0	1,530,047,648	0	1.100

Source: CCA.

Notes: Cereal banks and seed distributions are planned for May-August 2008, although the tonnage is not available.

81. ***To improve the functioning of its emergency response interventions, the DNP-GCA developed a national contingency plan for food security and nutrition with the participation of a variety of governmental and non-governmental actors.*** Developed in 2007, the document outlines the strategic priorities for the DNP-GCA for preventing and managing food crises in the country. The overall objective of the plan is to minimize the impact of food crises by ensuring households' access to staple foods and protecting their assets, mainly via the national security stock and emergency cash resources. The document also outlines a variety of early warning indicators (such as cereal deficits, food prices, and severe malnutrition rates) in order to identify different food crisis scenarios and to implement appropriate interventions (such as general food distribution, FFW, CFW, subsidized sales, and seed distributions).

example, in 2005, it is estimated that the OPVN purchased 2,300 metric tons of grains for sales and distribution; at the same time, other documents report that approximately 40,000 metric tons were purchased in 2005 by the Government of Niger. However, the CCA reports that it purchased 50,000 metric tons of food from neighboring countries.

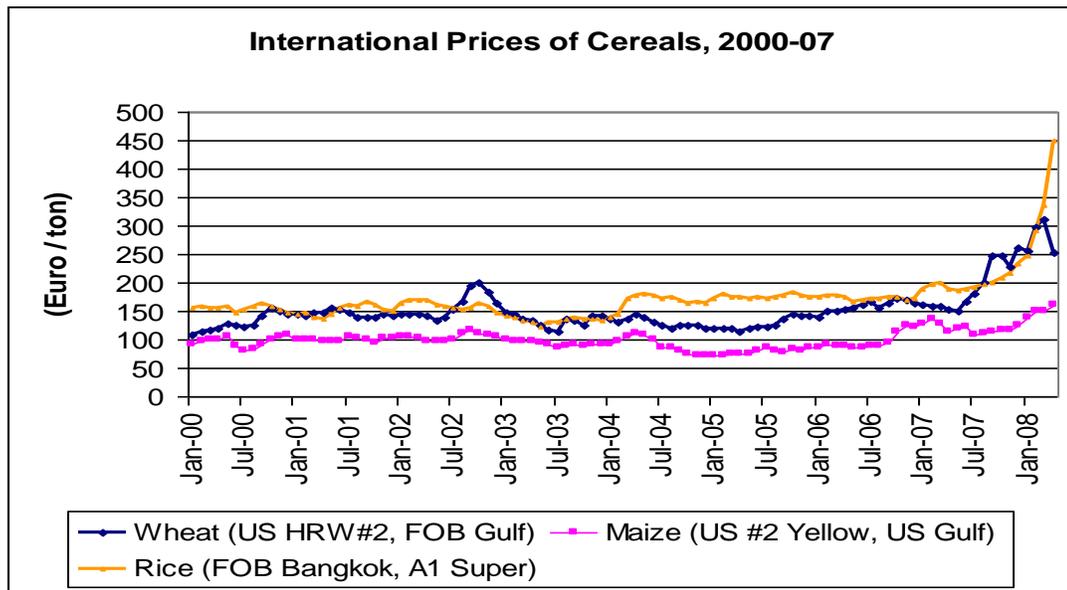
82. ***There is a lack of agreement on what are the most effective safety nets interventions in Niger.*** The list of response interventions outlined by the national contingency plan includes most of the same instruments that have been used in the past few years and puts more emphasis on CFW than on FFW and cereal banks. However, there is no good indication of what has been more effective. The data on cereal banks from the 1990s show that these have not been sustainable. CFW programs, which are usually preferred to FFW, are fairly new interventions that have not been fully evaluated in Niger. In addition, CFW programs are only appropriate if prices are sufficiently low.

NIGER 2008: PREPARING FOR AND RESPONDING TO A POTENTIAL FOOD CRISIS

83. ***International prices of major cereals (rice, wheat, and maize) have been on an upward trend since 2006*** (Figure 17). Maize prices have increased by 45 percent in both Euro and CFA terms between March 2006 and March 2007, due in large part to increased demand for maize for ethanol production in the US. Wheat prices rose sharply in late 2007 following a poor harvest in Australia (a major exporter of wheat), which aggravated already low international wheat stocks. By March 2008, international wheat prices (in Euro and CFA terms) were 96 percent higher than they were in March 2007. The increase in international rice prices has been the most dramatic. Following India's ban on private sector exports of non-Basmati rice in late 2007 as well as similar bans by Vietnam and other exporters, international rice prices rose to €449 per metric ton in April 2008 (nearly US\$700 per metric ton), 126 percent higher than in March 2007. Overall, prices of maize, wheat, and rice were 106, 71, and 90 percent higher respectively in Euro terms in March 2008 than in March 2006.⁶¹

⁶¹ In US dollar terms, international maize, wheat, and rice prices were 166, 120, and 145 percent higher in March 2008 than the previous year.

Figure 17: International Prices of Grains (Wheat, Rice, and Maize), 2000-2007

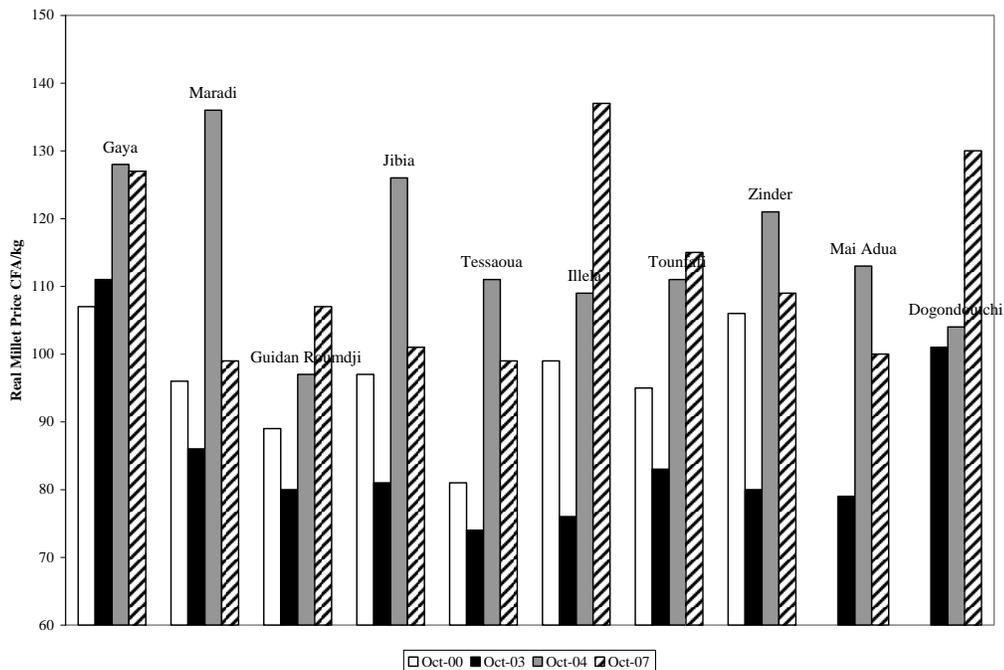


84. ***The increase in international food prices should have only a limited impact on food security in Niger, which primarily imports millet, sorghum, and maize.*** In this environment of high international grain and petroleum product prices, poor consumers, especially those in net food importing countries, face serious threats to their food security. To some extent, Niger is insulated from the direct effects of these international price increases, as neither sorghum nor millet is internationally traded in large volumes. Niger's prices for these commodities are affected by supply and demand conditions in Nigeria. Similarly, Niger imports maize from Benin and Nigeria, which are important local producers of this commodity. Consequently, changes in international maize prices are filtered through Nigeria. Finally, while wheat and rice prices in Niger are more closely linked with those in international markets, these commodities are not major staples of the poor in Niger, especially rural areas.

85. ***Price increases of staple grains (millet, sorghum, and maize) in 2007/2008 appear to be driven by irregular rainfall and poor harvests in late 2007 rather than international price movements.*** While departmental-level production data are not available, Figure 18

shows millet prices in key forecasting markets in Niger and Nigeria for October 2007. The prices in several of these markets – namely, Gaya, Guidan Roudji, Tessaoua, Illela, Tounfafi, Mai Adua, and Dogondoutchi – are higher or close to the price levels of the 2004 harvest. The prices for Benin (Malanville), Maradi, and Jibia, however, are below the October 2004 levels. This suggests that there were production shocks in these markets during the 2007 harvest that were similar to those in 2004 but not of the same magnitude. Therefore, while 2007 was considered to be a normal harvest, the price data suggest that perhaps key markets were affected during the harvest period.

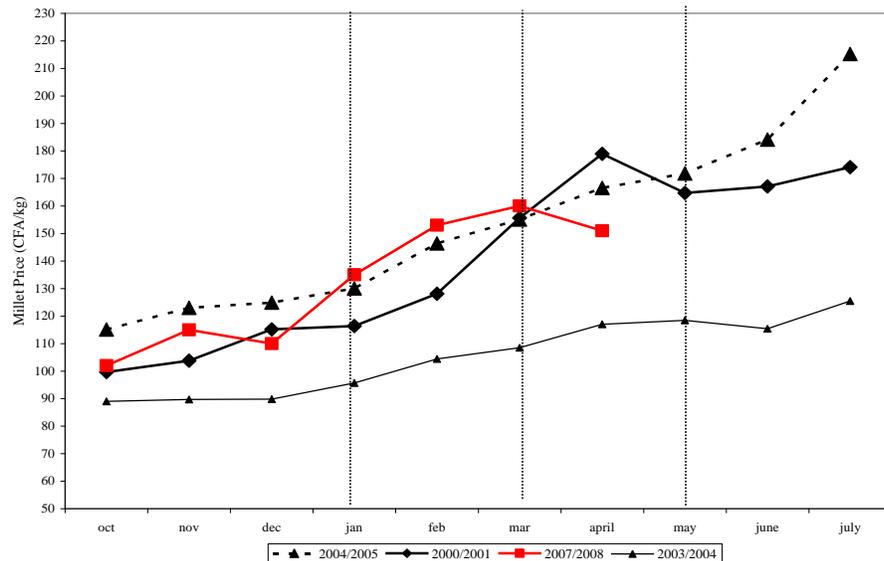
Figure 18: Millet Prices in Key Forecasting Markets during the Harvest Period in 2000, 2004, and 2007



86. ***The Government of Niger, early warning systems, and NGOs should monitor price differences between Nigeria and Niger to determine whether grain imports will be profitable in 2007/2008.*** During normal years, prices in northern Nigeria are lower than those in Niger as of May/June, thereby making it profitable for Niger to import grains from Nigeria. In 2004/2005, prices in northern Nigeria were above those in Niger for the entire

marketing season, suggesting that imports were not profitable during that year. In order to determine whether imports from Nigeria will be profitable in 2007/2008, early warning systems and NGOs should monitor grain prices on cross-border markets and compare them with prices in Niger. If prices in northern Nigeria remain higher than those in Niger, this suggests that Niger will need to import from other countries. The following price pairs should be compared: Malanville (Benin)-Gaya (Niger), Illela (Nigeria)-Konni (Niger), Jibia (Nigeria)-Maradi/Dan Issa (Niger), Mai Adua (Nigeria)-Zinder/Matameye (Niger), and Kantchari (Burkina Faso)-Torodi (Niger). Figure 19 shows how millet prices have been changing in 2007/2008 compared with other drought and non-drought years (2000/2001, 2003/2004, and 2004/2005). Between October and March, grain prices in Niger and northern Nigeria have been following a pattern similar to a drought year. However, as of April 2008, prices have fallen slightly on these markets. This suggests that price movements in May/June should be monitored carefully and that any emergency preparedness and response interventions should not put pressure on local and regional supply.

Figure 19: Changes in Millet Prices between the Harvest and Hungry Periods



87. ***In the meantime, the government and international organizations are preparing a response program.*** To cope with the price increases, as part of the emergency measures, the government has already taken temporary fiscal measures to mitigate the impact while also replenishing cereal stocks. Specifically, the VAT and customs duties on rice imports have been suspended for three months in an effort to alleviate the impact of the increase in food prices on consumers. In addition, with international support, existing governmental and non-governmental institutions are in the process of preparing a response based on existing emergency mechanisms, which consist of food-based programs for emergency distribution, FFW programs, subsidized cereals, and CFW programs to raise the purchasing power of affected households.

CHAPTER 5: SUMMARY AND POLICY OPTIONS

Niger faces serious problems of poverty and household food insecurity. Although the magnitude of the problem is most evident during years of climatic shocks, especially drought, the problem is in fact a chronic one. Low levels of food availability, limited economic access to food, and Nigeriens' poor health and nutritional status have resulted in food insecurity and malnutrition for much of the population, even in years of normal harvests. Faced with limited resources, a high prevalence of poverty, and periodic droughts and other shocks, Niger needs an effective food security and social protection strategy. Such a strategy should include three key components: (i) increasing the efficiency and scope of safety net programs; (ii) promoting effective medium-term strategies and investments to increase food availability and access and improving health and sanitation practices; and (iii) strengthening emergency responses. Avoiding future food crises will also require greater recognition of the major importance of regional markets (particularly Nigeria) in influencing market prices, food imports (and exports), and, ultimately, household food consumption in Niger. Finally, any social protection strategy will need to be consistent with the country's overall strategy for growth and poverty reduction, which represents the ultimate solution for food insecurity and the poor health and nutritional outcomes associated with both poverty and household food insecurity.

SUMMARY OF FINDINGS

Poverty and Food Security

88. *More than 50 percent of Niger's population suffers from some form of food insecurity, and most of the population does not consume the minimum daily caloric requirements for adequate nutrition.* Nutritional data show that much of the rural population suffers from seasonal food insecurity and that both rural and urban populations are vulnerable to transitory food insecurity, defined as reduced access to food after a shock. Analysis of

household survey data shows that, although there was some improvement between 2005 and 2006, the food security situation of the poor remains very fragile, with many households consuming only slightly above the minimum daily caloric requirement. Higher food prices would be likely to prompt these households to reduce their consumption even further unless there were compensating gains in household incomes (including transfers). Among the various coping strategies used by households to mitigate shocks are: (i) receiving food aid; (ii) reducing the number of eaten meals per day; (iii) migrating; and (iv) selling assets or livestock. Overall, poor households are more exposed to shocks, the poorest regions are the most vulnerable to food insecurity, and coping mechanisms make households more vulnerable to future food insecurity.

Food Availability and Markets

89. ***Because over two-thirds of the daily caloric consumption of Nigeriens comes from cereals, the production, total availability, market prices, and performance of markets for cereals are crucial determinants of food security.*** Typically, over 80 percent of Niger's total available amount of cereals comes from domestic production, mainly millet and sorghum. Droughts and pest attacks often cause large fluctuations in domestic production, and production losses vary substantially between regions within Niger. Formal sector imports (food aid and commercial imports) consist mainly of wheat, maize and rice and average only a small share of supply (7 percent of the average 2.8 million tons of annual total net cereal availability from 2000 to 2005). Unofficial imports of millet from Nigeria may have added as much as 200,000 tons to total net supply in recent years, though there is considerable uncertainty over these magnitudes. Survey evidence and analysis of prices indicate that Niger's wholesale cereal markets are generally well integrated. Markets in southern Niger are also well integrated with markets in Nigeria close to the border. However, a lack of data makes it impossible to carry out any detailed analysis of price links between major markets in northern Nigeria (such as Kano) and those in Niger.

The 2005 Food Crisis, the Current Surge in International Prices, and the Government's Response

90. ***In early 2005, national policymakers and the international community were caught by surprise by reports of sharp price increases and serious malnutrition in southern Niger.***

Estimates of national food production in late 2004 had suggested only a modest decline in production relative to medium-term trends, though it was clear that the October 2004 harvest was likely to be smaller than that of 2003. One major cause of the crisis was the extremely low income level of households, which contributes to their low nutritional status in normal years and makes them highly susceptible to major income and price shocks. In 2005, two major shocks occurred – a sharp rise in food prices (related to even more dramatic price increases in some of Nigeria's markets beginning in mid-2004) and losses in food production and incomes for those farmers whose late 2004 harvests were affected by drought and locusts.

91. ***The government's response was not sufficient to mitigate the impact of the 2004/5 crises on the vulnerable groups.***

The government's response, with international support, consisted mainly of food aid for emergency distribution as well as the sale of approximately 40,000 tons of cereals between February and June 2005 and FFW and CFW programs to raise purchasing power of affected households. Despite of these efforts, in some of the worst-affected regions the gross mortality rate and child mortality rates rose well above international thresholds for humanitarian crises. Avoiding such crises in the future will require: (i) better monitoring of production and prices at the local level to capture information on which households are experiencing large shocks to their incomes and purchasing power; (ii) more monitoring and ongoing analysis of cereal markets and likely trade flows from neighboring countries (especially Nigeria); and (iii) strengthening of the government's response capacity.

92. ***Is Niger affected by the international increase in food prices and how should the government respond in 2007/8?***

High international world prices for grains are a cause for concern because of their potential effects on domestic markets, as well as the potential for

reduced availability of food aid if Niger (or even Nigeria) should suffer a production shortfall as appears to have been the case in late 2007. To some extent, Niger is insulated from the direct effects of these international price increases because neither sorghum nor millet is internationally traded in large volumes. Niger's prices for these commodities are affected by supply and demand conditions in Nigeria. Wheat and rice prices in Niger are more closely linked with those in international markets, but these commodities are not major staples of the poor, especially rural areas. However the price increases of maize, sorghum, and millet in Nigeria in 2007 and early 2008, driven mainly by the irregular rainfall and poor harvests in late 2007 and not by international price movements, might raise some concerns. In the short run, it is important that the government monitor international and domestic market prices and recognize that increases in market prices in Niger that coincide with price movements in Nigeria (for maize, sorghum, and millet) and international markets (for rice and wheat) are unlikely to be due to non-competitive behavior on the part of domestic traders but on increases in the cost of additional supply. As such, the government should avoid placing any restrictions on the storage and trade of cereals but instead make efforts to promote market efficiency by ensuring the transparency of government policies on food aid flows, other official imports, and releases of stocks. Sharing information with private sector traders and importers is one way of building confidence (Minten and Dorosh, 2006 and Dorosh, 2008b). In addition, the Government of Niger should consider not making any local or triangular purchases of grains in Niger or in Nigeria to avoid putting pressure on local supply and hence prices.

OUTLINE OF A FOOD SECURITY AND SOCIAL PROTECTION STRATEGY

93. To better address the chronic and severe transitory food insecurity problems in Niger, a broad response is needed, including: (i) safety nets to protect poor and vulnerable households; (ii) medium-term policies and investments to increase food availability and improve health and sanitation practices; and (iii) measures to strengthen the emergency response system.

Safety Nets to Protect Poor and Vulnerable People

94. ***Although the food insecurity problems that occur in drought years are most visible, safety nets are needed even in years of normal harvests to address the needs of chronically food-insecure households.*** Every year, at least 20 percent of the population of Niger is severely chronically food-insecure. In addition, there are many poor and vulnerable households that would be faced with a catastrophic drop in household purchasing power and access to food if faced with individual-level shocks (such as an injury, sickness, or death in the family or the loss of a job), which would cause them to fall deeper into poverty. Farmers also face price risks and suffer income losses if post-harvest prices are low, making it difficult for them to meet their current consumption needs and repay debts.

Box 6: Ethiopia's Productive Safety Net Program (PSNP)

In Ethiopia, over 40 percent of the population lives below the national poverty line and over 20 percent of the population is extremely poor (consuming less than 1,650 kilocalories per person per day). Since the variability in rainfall in Ethiopia is among the highest in the world and fluctuations in rainfall are inversely related to mean incomes, every year for more than two decades the government of Ethiopia has launched an international emergency appeal for food aid. This annual emergency assistance was designed to meet the consumption needs of both chronically and transitorily food-insecure households. Despite substantial amount of humanitarian assistance, evaluations have shown that emergency assistance was unpredictable for both planners and households, often arriving late relative to need. As a result of the delays and uncertainties, the emergency aid could not be used effectively and did little to protect livelihoods, prevent environmental degradation, generate community assets, or preserve household assets (physical or human capital).

Characteristics of the Program. Given the shortcomings of the emergency aid regime, in 2005 the Ethiopian government started implementing a new program, the Productive Safety Net Program (PSNP). The PSNP replaced the emergency humanitarian appeal system as the chief instrument in the country's safety net. The program is currently operational in 234 chronically food-insecure districts (of a total of 692 districts), and targeted about 7 million people in 2006. The PSNP provides resources to chronically food-insecure households in two ways: (i) through payments to the able-bodied for participating in labor-intensive public works activities and (ii) through direct grants to households consisting of the elderly or those who cannot work for other reasons.

Impact of the PSNP. A 2005 beneficiary survey found that the PSNP had had a significant positive effect on beneficiaries' well-being as calculated by both subjective and objective indicators. The survey found that three in five beneficiaries avoided having to sell their assets to buy food in 2005, and according to 90 percent of the households, this was a result of their participation in the PSNP. Moreover, almost half of the beneficiaries surveyed stated that they had used health care facilities more and 76 percent of these households credited the PSNP with this enhanced access. More than one-third of surveyed households enrolled more of their children in school and 80 percent of them attributed this to their participation in the PSNP.

Ongoing Reforms. Significant work is planned to increase implementation capacity and improve systems to a level that was not previously possible when Ethiopia's safety net consisted of fragmented and temporary programs. Work is also beginning on a conditional cash transfer in the same districts to help temporarily food-insecure households during periods of drought. The mechanism will use a rainfall-based index based on 30 years of rainfall data to trigger funding. Moreover, the PSNP is complemented by a larger food security program that helps households to raise their incomes by means of resettlement grants, household income-generating packages, and water harvesting. Households that benefit from the PSNP are also entitled to assistance under other parts of the food security program. However, food security interventions financed by donors that fall outside the PSNP are rarely coordinated at local levels, and their links to basic rural services are also weak.

Lessons Learned. The PSNP illustrates many of the issues that apply to safety nets in very low-income countries, namely:

- The program is moving in a clearly beneficial direction by means of a basic design that not only seeks to use resources in ways that save lives but also to increase livelihoods. The progress made to date in implementing the PSNP suggests that this is possible even in a very low-income setting.

- The Even when fully realized, the program will only provide a safety net in about one-third of the country. The districts selected are the poorest as is appropriate, but many poor people also live in the unserved districts. Moreover, the program has phased in its implementation, focusing first on consolidating the basic PSNP. The government hopes to enrich it eventually in a number of dimensions, but program managers and donors realized that everything could not be accomplished right away. Thus, for example, the contingent fund for droughts was not implemented until the third year of the PSNP.
- Good implementation requires a diligent and sustained effort. By 2007, the program had many positive outcomes and early qualitative assessments of its targeting and impacts have been positive, but more remains to be done. Good implementation also requires flexibility and innovation. For example, the government was initially having problems with the program's monitoring system, but in the interim, it deployed so-called rapid response teams to visit districts to identify and solve any implementation problems. This gave managers a sense of what was going well and what was not and whether adjustments were needed in individual districts or at a more systemic level. Meanwhile, the design of the monitoring system was simplified and a pilot to computerize it is under way.
- An important part of the reform is the shift to a multi-donor, multi-year framework rather than an annual emergency appeal system with each donor running a separate initiative. This is complemented by the decision to deliver the program through regular government systems rather than through the special implementation units that are common in donor-funded programs. The multi-year framework and the reduction in fragmentation should make it possible to develop much more effective administrative systems. The multi-donor framework should also make the program more resilient, in that the withdrawal or a reduced commitment by a single donor will have a less deleterious effect than if the donors were still operating separate programs.

Source: Grosh et al. (2008).

95. ***The challenge lies in developing an effective general safety net system that can be adequately financed.*** The mechanisms for preventing and responding to food crises as currently implemented by the DNP-GCA constitute only a part of a safety net system. Consequently, to develop a full-scale safety net system for households suffering from chronic, seasonal, and transitory food insecurity, it will be necessary for the government to: (i) formulate a safety net program that is consistent with the PRSP2 and RDS and (ii) coordinate with its technical and financial partners (TFPs). This in turn will require the inclusion of safety net programs in the government budget and the confirmation of a long-term financial commitment on the part of the TFPs. The decision about how extensive to make the safety net program must take into account the costs of the program and any possible tradeoffs with investments related to the PRSP2. The decision-making process should include consultations

with civil society, relevant government agencies, and donors. Once a sustainable safety net program is in place, it could be scaled up in the event of a major production shortfall both in terms of the number of beneficiaries and the amounts transferred. In order to ensure continued support for the safety net program, it is crucial that its financing should be included in the government budget, perhaps with a commitment of long-term financial support from donors. For example, in Ethiopia, a country also confronted with recurring food crises, the government and donors have agreed upon multi-year financing agreements for the country's Productive Safety Net Program (PSNP) to replace the annual appeals for funding that often led to delays in routing food aid or to inappropriate use of funds (see Box 6.) This medium-term finance mechanism has increased the effectiveness of the design and implementation of safety net support and has reduced uncertainty among the recipients.

96. ***Existing government programs involving the distribution of food could be included in the overall safety net system, though steps should be taken to make them operate more efficiently.*** This would require: (i) an assessment of the effectiveness of existing programs including labor-intensive public works such as FFW and CFW programs, the free distribution of foodstuffs, subsidized food sales, cereal banks, and school cafeterias; (ii) a review of the existing targeting system to determine the challenges involved in addressing the needs of chronically poor people; and (iii) an improvement in the program monitoring system. Within this framework, to ensure that the safety net system is effective (in both crisis and normal periods) it must be possible: (i) to guarantee that the FFW and CFW programs are well organized and yield productive results; (ii) to limit the amount of free distribution of food as well as subsidized sales and pay specific attention to the timing and localization of sales; (iii) to ensure that the purchase of local foodstuffs is well planned; and (iv) to ensure that there are transparent and efficient targeting procedures for selecting the regions and households to benefit from the program. The free distribution of food and subsidized sales of food should be done only on a limited scale, with careful attention paid to the timing and location of sales, particularly avoiding harvest time as this could reduce farmers' revenue.

New safety net programs could be introduced. Once the vulnerable groups are identified and the evaluation of the existing programs is completed, it will be necessary to pilot certain types of programs based on transparent participation eligibility criteria, coverage, and cost, including cash payments and conditional cash transfers. Cash programs have an advantage over in-kind food distribution because they avoid the operational costs involved in the storage and movement of food as well as the possible disincentive effects on production during periods when food is readily available (for example, harvest periods or, more generally, good harvest years). Conditional cash transfers, which are conditional on recipients meeting certain requirements such as ensuring that their children attend school and/or make regular use of health services, offer benefits both in terms of increasing the incomes of targeted households and forwarding certain socially desirable outcome (such as school attendance and use of health services for children).

Medium-term Policies and Investments to Increase Food Availability and Improve Health and Sanitation Practices

97. ***Medium-term policies and investments are also needed to reduce the vulnerability of poor households to production shocks, raise their incomes, and enhance market efficiency.*** For example, in Bangladesh, long-term investments in rural roads (often built through FFW or CFW programs) and agricultural research and extension were combined with effective government policies that promoted the expansion of small-scale irrigation by liberalizing the import of small pumps and food policy management to ensure that food aid flows did not give farmers a market price disincentive to reduce domestic food production (see Box 7). As a result, over a period of about two decades, Bangladesh was able to double its food production, raise rural incomes, and reduce its dependence on food aid imports. Similarly, India used FFW and other public works programs to develop irrigation systems that increased agricultural production and rural incomes.

Box 7: Enhancing Food Security in Bangladesh

Bangladesh has made considerable progress in increasing food production and enhancing food security by supporting agricultural research and extension, investing in roads, maintaining price incentives for domestic production, liberalizing domestic and international trade in cereals, and carrying out targeted public food distributions.

Bangladesh suffered a major famine in 1975 following flood-induced production shortfalls in late 1974, as the country lacked foreign exchange for imports and government stocks for targeted distribution. Thereafter, the country invested heavily in small-scale irrigation (including major private sector investments in tube-wells), agricultural technology, and roads. As a result, Bangladesh was able to double its rice production between the mid-1970s and the late 1990s. Particularly important for food security was the increase in winter season crops (boro rice and wheat) that made possible a major harvest following the traditional monsoon season harvest.

Following major production shortfalls due to massive floods in 1988 and 1998, Bangladesh was able to prevent a recurrence of famine. In 1988, the government relied on large public stocks of rice and wheat, government commercial imports, and food aid inflows to stabilize market prices and permit large-scale public distribution of grains. A decade later, following the 1998 floods, trade liberalization made private sector imports of rice and wheat possible, and the private sector responded with over 2 million tons of rice imports from neighboring India. As a result, rice prices were stabilized without large-scale public distribution of grain or food aid flows and at minimal cost to the government. Food aid-supported and other public distribution programs were used, however, to target flood-affected and other poor households.

As shown by the Bangladesh experience, an appropriate mix of public and private investments, combined with adequate price incentives, can lead to increased production and reduced variability of major cereals. Moreover, it is possible to promote private trade to increase the availability of food and stabilize prices while operating major targeted food transfer schemes to directly increase access to food for poor households. Such a combination of policies can substantially lower fiscal costs but requires transparency on the part of the government in order to reduce risks for private sector trade.

Sources: del Ninno et al (2001) and del Ninno et al (2004 and 2007).

98. ***There is need to promote efficient domestic agriculture production.*** In Niger, increasing agricultural productivity and the level and stability of domestic production would help to increase food availability, raise rural incomes, and reduce fluctuations in output and rural incomes. To achieve this, it will be crucial to design and implement policies to promote efficient domestic agricultural production, including investing in agricultural research and extension, investing in road construction and maintenance, and increasing market infrastructure (such as basic storage facilities in major markets). Also essential in Niger's semi-

arid environment is to increase farmers' access to water for use in agriculture by investing in irrigation and water retention (for example, check dams, where appropriate).

99. ***The government must also ensure that its trade policies do not impede the development of the cereal market.*** Its internal and external trade policies should consistently support short-term market efficiency, especially in emergencies, and avoid measures that impede medium-term market development. In particular, the government should avoid placing restrictions on the storage and trade of cereals but instead make efforts to promote market efficiency by ensuring that government policies on food aid flows, other official imports, and releases of stocks are transparent. Open consultations with private sector traders and importers to share information are one way of building confidence.

100. ***Reducing price risk for farm products would also increase incentives for production and reduce the variability of rural incomes.*** This need not involve direct government intervention in markets, which in many countries has proven to be ineffective and expensive, often reducing the efficiency of markets by reducing incentives for private sector processing, trade, and storage. Instead, promoting farmers' groups can help small producers to pool their products and make use of group storage or transport facilities. Improvements in market information systems on the prices and volumes of production and market supplies can also help farmers to increase their bargaining power and make more informed decisions on their sales. Already, the use of cell phones has proven to be effective in improving the transmission of price information across markets.

101. ***Increasing the access of the rural poor to food could also involve helping these households to diversify their income-generating activities.*** Encouraging the provision of micro-credit by local NGOs has been successful in supporting these activities, particular in situations where there was sufficient effective market demand for the outputs. In the medium term, investments in education and vocational training are also needed to increase human capital and raise labor productivity.

102. ***Finally, improvements in health and sanitation are needed to promote better nutritional outcomes and overall health.*** Increases in food consumption alone may not lead to improved nutrition if disease or otherwise poor health prevents individuals, especially pregnant and lactating women, small children, and infants, from receiving the full benefit of the food that they eat. Programs that address the overall health and sanitation environment, as well as the care and feeding practices of infants, need to be supported, particularly among the poorest households.

Strengthening Emergency Response System and Improving the Information System

103. Significant progress has been made in monitoring and responding to acute disasters. Nonetheless, further steps are needed to strengthen early warning systems and the emergency response system (see Annex 1).

- ***Revise the government's National Contingency Plan.*** As discussed earlier, several institutions are involved in the early warning and emergency response systems. Implementation of the government's National Contingency Plan for Food Security is needed to strengthen the key institutions involved, particularly with regard to timely analysis and policy design. In this context, the role of the OPVN should be more clearly defined, along with the operational rules regarding the use of the emergency food security stock. Given the multiplicity of actors involved (various government agencies, NGOs, and donors), a more comprehensive system of monitoring food procurement, distribution, and stocks throughout all of the various programs should be set up.
- ***Improve the early warning system.*** Current early warning systems provide valuable information on markets in Niger. However, monitoring and analysis of price movements, particularly in the whole of Nigeria (not just in border markets) and in the broader international markets, are also crucial to ensure warnings are received early enough to arrange for additional food aid or government commercial imports in the event of a

poor domestic harvest. This will require a significant strengthening of analytical capacity within the key government institutions (the CCA, SAP, and SIMA). Likewise, encouraging the free flow of information in newspapers and other media can help to keep the government informed of situations where urgent action is needed.

- ***Use safety net programs to complement the emergency response.*** Once sustainable safety net programs are developed, it should be possible for the government to scale them up substantially in the event of a major production shortfall. This will require effective contingency planning, including arrangements for financing and effective program implementation, with areas of responsibility clearly delineated.

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ANNEX I: DESIGN OF EARLY WARNING SYSTEMS

There is considerable debate as to the appropriate design of early warning systems for the prediction of drought and famine in Africa. Much of the debate centers on the ability of current or prospective indicators to provide location-specific, timely, and cost-effective information. Macro-level environmental data are generally agreed to be useful, but they are often unable to indicate the individual communities most in need of relief. Furthermore, while grain prices and dispersion in Niger are strongly affected by climatic shocks, there was not a strong correlation between drought and food crisis regions in 2005. Consequently, an early warning system based solely upon climatic indicators would have over-estimated (or under-estimated) the severity of the crisis. Similarly, although per capita grain production was higher in 2004 than 2001, the severity of the food crisis was much greater in 2005 than in 2001; consequently, an early warning system that depends primarily upon production levels would have underestimated the severity of the food crisis. In an effort to minimize concerns related to using macro-level indicators, the use of local-level indicators has been recommended in this report to generate predictions on the food supply at the village or sub-district level. However, the choice of indicators remains controversial.

Drought and Agricultural Production

Indicators of drought and agricultural production are timely and easy to use and can provide early information on a possible food crisis in West Africa. Nevertheless, as experience has shown in Niger, droughts do not necessarily lead to food crises or vice versa. De Waal (1997) notes that the most effective early warning indicators can be reliably associated with the development of food crisis conditions; more specifically, they should generate few responses to situations where food crises do not actually develop (“false positive” responses) and should not fail to respond when an actual famine is approaching (“false

negative” responses). Relying solely upon drought and agricultural production as early warning indicators for Niger would have generated a “false positive” in 2001, but yielded a “false negative” in 2004.

While drought-based and agricultural production-based predictions are prone to error, these indicators can be strengthened by changing the level of analysis. Rather than focusing on the presence of drought or national per capita production, a more appropriate indicator would be the percentage of regions or departments affected by drought or by production shocks. For example, while overall per capital production was higher in 2004 than in 2001, the percentage of departments affected by production shocks was much higher. Similarly, drought and production levels in the northern regions of Benin and Nigeria should also be monitored.

Monitoring Domestic and Regional Market Prices

Market activity at the national, regional, and local levels has been used to signal an impending food shortage in a variety of early warning systems (Huss-Ashmore 1997). In general, two aspects have been monitored: the amount of grain or livestock being traded and changes in the prices of these commodities. These indicators are interconnected, as changes in the quantity of commodities traded affect their prices. However, monitoring the amount of grain traded – either domestically or via imports – is difficult, especially in the West African context. One indication of impending food crisis is an unusually high or rapid increase in the price of staple food grains (McCorkle, 1987 and Walsh, 1986).

As with all market data, the interpretation of price changes in agricultural markets depends on local circumstances (Huss-Ashmore 1997). Normal seasonal fluctuations in prices need to be considered when assessing the meaning of sudden market shifts. Only increases that

significantly exceed those expected for a particular period can be considered as signs of an unusual shortfall.⁶²

The relationship between market performance and food crises in Niger provides some indications of the appropriate focus, timing, and interpretation of changes in market prices. Although the current early warning systems in Niger monitor a variety of markets, not all markets affect grain prices or food security to the same degree. First, early warning systems should carefully monitor key “forecasting” markets within Niger and in the sub-region (Benin and Nigeria). To be precise, strategic forecasting markets could be defined as those markets that “Granger-cause⁶³” a significant number of markets in Niger (for example, over 75 percent), including those located in Benin and Nigeria.

A secondary consideration is the timing of the monitoring of market prices. While current systems monitor prices on a monthly basis, the harvest (October-November) and hungry (June-August) periods are of most concern. The relatively higher prices in Granger-causing markets during October 2004 relative to the previous year could have served as a key indicator of the potential crisis during the 2004/2005 marketing season. This is especially important in light of the slow adjustment speed of market prices. Therefore, early warning systems should also monitor prices in key forecasting markets in Niger, Benin, and Nigeria during the harvest period in order to determine whether price levels are higher at the outset of the marketing season.

⁶² Variations in local circumstances mean that economic activities, as famine indicators, do not function equally well for all populations. Cutler (1985) showed that both the retail price of coarse rice and the demand for fertilizer served as accurate warning signals for famine conditions in Bangladesh in 1979. Similarly, McCorkle (1987) argued that flux in the market prices of cereals and livestock is one of the most promising quantitative markers of famine onset in West Africa. Using data from Burkina Faso, she showed that the food crisis of 1983-84 was accurately signaled by a tripling of the price of sorghum, a sharp fall in the selling price of cattle, and an increase in the number of farmers defaulting on their advance sales agreements with grain merchants. By contrast, de Waal (1997) argued that economic indicators were poor predictors of famine for Darfur in Sudan in 1984-85. Despite two complete harvest failures in northern Darfur and one in southern Darfur, economic data proved to be neither sensitive to nor specific in predicting increased mortality.

⁶³ The Granger causality test is a statistical hypothesis test for determining whether one time series is useful in forecasting another.

While monitoring prices and price changes in strategic markets is important, knowing that prices are “higher” or have “increased” does not provide an effective indicator for determining whether there will be a food crisis. Based on the livelihood security studies and poverty studies conducted by international organizations, a threshold grain price in key national and regional markets should be identified.

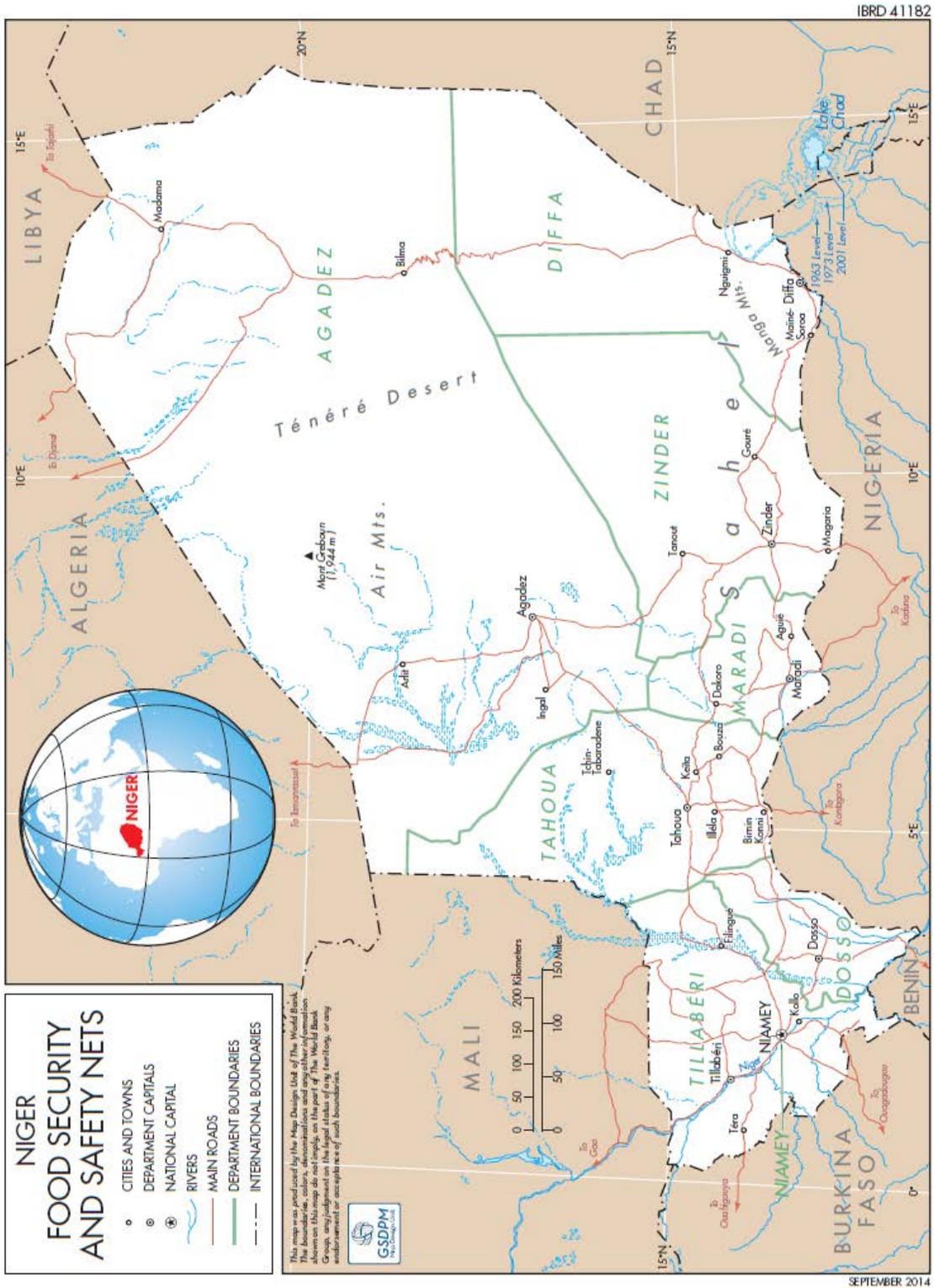
Fuel Prices

Traditionally, fuel prices are not included as early warning indicators in the West Africa region. While grain prices are fairly inelastic to changes in gas prices or transport costs, such changes do affect geographical arbitrage opportunities. Consequently, changes in fuel prices can impact the geographical allocation of goods, thereby affecting food supply and prices. Monthly fuel prices and transport costs could be a timely and cost-effective indicator of food crises, especially for remote or distant markets.

Market Information

Most early warning systems focus on providing relevant and timely information to policymakers rather than to the market actors themselves. Market performance, however, depends on symmetric access to appropriate information. Asymmetric information prevents market actors from taking advantage of optimal arbitrage opportunities. Although market information systems collect and disseminate price information in several West African countries, survey evidence suggests that these are not always used by traders and farmers. A recent study in Niger found that cell phone coverage is associated with a statistically significant reduction in grain price dispersion as well as lower grain prices. The main mechanism for this result was a change in traders’ behavior as traders use cell phones to gather market information and to make decisions about the optimal allocation of goods. This suggests that the data on and analysis of early warning systems should not only be available to policymakers but also to market actors.

Map IBRD 41182



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Abstract

This study aims to assist the Government of Niger in developing a multi-sectoral approach to reducing the population's vulnerability to food insecurity. The study reviews food security policies and programs in Niger, and provides an action plan for strengthening the existing system and developing an effective safety net strategy. The study finds that targeting of food aid has been either weak with significant leakages. Moreover, although the need to support poor and food insecure households is substantial, safety nets are small, receive limited funding, and are designed for emergency food crises. The study recommends to improve the efficiency and scope of safety net programs in Niger and to promote effective strategies to improve food availability and the emergency response systems.

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