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Famines are a Thing of the Past: Food Security Trends in Northern Burkina Faso

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Abstract

Sub-Saharan Africa is often portrayed as a region of chronic hunger, conflict, and poverty. The country of Burkina Faso is a bright spot on the continent where government agencies, NGOs, and development organizations have progressively improved food security to the point where citizens often state, “famines of the past could never happen again.” This study evaluates such claims by looking at food security trends over the last 18 years using ethnographic participatory fieldwork and grain price data. Community members have invested in numerous soil and water conservation (SWC) measures that buffer their crops from droughts and agro-climatic variability. There is also a national famine early warning system in place and improved infrastructure that helps the government and NGOs efficiently provide food assistance in times of need. Thus, fewer households are affected when droughts occur due to these adaptations and food insecurity is not as severe or widespread as in the past. Local grain prices are, however, rising and becoming more closely linked to world food markets. Just as most households are becoming more food secure, those who are dependent on grain purchases are becoming more food insecure.

Keywords

Food Security; Sahel; Burkina Faso; Mossi

Mba-Katré, the hyena, and *Mba-Soâmba*, the hare, were friends.

There had been such a famine that no one had anything to eat.

So the hare made an offer to the hyena. He proposed that each one of them sell his mother in order to buy some grain.

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- From Sissao (2010: :29)

The lines above are from a famous Mossi folktale called, “The Hare and the Hyena.” No one really knows when this story was first told but people in northern Burkina Faso are very familiar with its various versions in which the cunning hare tricks his naïve and trusting friend the hyena. Undoubtedly very old and deeply rooted in Mossi cultural history, certain facets of it resonate with the everyday lives of contemporary Mossi people. First of all, it references a “famine” and the northern parts of Burkina lie within the West African Sahel region where food shortages commonly occur. The tale also describes conditions whereby “no one” had “anything” to eat, which suggests a widespread and extreme food deficit. Two recent famines of this magnitude affected this part of the Sahel from 1968 to 1972 and again from 1983 to 1985 (Franke and Chasin 1980; Glantz 1987). Furthermore, the story relates how the animals cope by selling off some of their assets in order to buy grain. These passages graphically illustrate the fundamentals of Amartya Sen’s (1981; 1999) entitlement approach for understanding famines. For Sen, starvation is not due to the *absence* of food, it occurs when people do not have *access* to food through exchange entitlements (Baro and Deubel 2006). Last, it suggests that people can become completely desperate and sell their own “mother” to buy grain. No one, of course, actually sells their mother but households of the Sahel have resorted to extreme measures during recent droughts that include permanent migration (McMillan 1995), commercial sex work (Roncoli, Ingram and Kirshen 2001), and total liquidation of productive assets (Davies 1996).

Like other anthropologists, we use this folktale as a heuristic device for understanding larger processes of social and environmental change within a particular ethnographic context (see Crate 2008). For us, “The Hare and the Hyena” reveals important cultural dimensions of food security for contemporary Mossi rural producers on the semi-arid northern Central Plateau of Burkina Faso. It helps guide our investigation of regional trends in food security by focusing on current causes of food shortages, adaptive strategies, and changes in grain markets. We ask general questions about whether or not food security is improving and then assess these improvements in terms of household sensitivity to agroclimatic shocks and the ability of households to purchase grain following production shortfalls.

Food security assessment is complex and anthropologists have played a prominent role in developing theory, indicators, and methodologies (Baro and Deubel 2006; Pottier 1999; Shipton 1990). These can be large, formal mixed-methods projects funded by development organizations (Baro 2002; Mazzeo 2011; Woodson 1997). Such assessments entail large teams that survey households across several geographic clusters to identify vulnerable groups and recommend policy interventions. Others consist of smaller case studies that qualitatively investigate changes in food security in the context of changing livelihood diversification over relatively long periods of time (Gezon 2012). Some recent studies were specifically designed to test theoretical models of food insecurity by collecting empirical data across livelihood sectors (Tucker, et al. 2010). There are a select few longitudinal case studies that assess changes in food security over several decades (McCabe 2003; McCabe, Leslie and DeLuca 2010).

All of these examples provide detailed information on important aspects of food security. They involve a great deal of data collection and intensive analyses, which are both time-consuming and expensive. Even within a single country, protocols and questionnaires can vary from one agency to another and complicate the comparison of results (Woodson 1997). Fieldwork often occurs at times and in places that are most convenient for expatriate researchers and host-country staff. Moreover, assessments are frequently conducted during crises when food insecurity is particularly acute and there is rarely long-term monitoring and evaluation of conditions. With the notable exception of Famine Early Warning Systems (FEWS) that exist in several developing countries, few humanitarian agencies or development organizations have the resources to comprehensively monitor conditions at regular intervals or over large areas. Most food security assessments suffer from limited temporal and spatial resolution, which make it difficult to effectively detect the degree to which conditions are improving or deteriorating (de Haen, Klasen and Qaim 2011). We recognize the need to use existing proxy data that is readily available, has higher spatial and temporal resolution to detect food security trends more easily at lower cost and with minimal analytical effort.

The study here presents an exploratory model for detecting food security trends for a given region of interest, over a relatively long period of time, with high temporal resolution, and minimal cost. This work differs from examples cited above in several important ways. First, we use results from pilot ethnographic fieldwork as a starting point for analysis. Second, our analysis is based on secondary data with high temporal resolution and substantial geographic specificity. Last, the analysis further focuses on temporal trends in food security for the particular region of Burkina in which we work. The results mostly inform our narrow ethnographic problem but the model and method could be easily adopted for other regions and similar issues.

Overall, we find that food security is indeed improving in terms of household agricultural production but that the global food crisis is eroding the ability of households to access grain. In the vein of Sen's entitlement approach to famines, there is certainly no food availability decline in Burkina Faso but the ways in which rural smallholders are entitled to food is becoming more precarious. There has always been abundant millet, sorghum, maize and rice available in local markets throughout our fieldwork in the country. In some periods, however, hungry households could not access these commodities because they were priced beyond their means. They had no animals to sell, no labor they could exchange, and little ability to borrow money in order to purchase grain. As described below, households rely on wealthier kin in other parts of the country to send cash and help them make it through the seasonal famine period. It is becoming easier to mobilize these entitlement relations through cell phone communication and transportation infrastructure but even these forms of assistance are becoming less effective. Some Mossi households have undoubtedly become categorically more food secure through improved agricultural techniques and investments in animals. Yet we have detected an overall secular and increasing trend in local grain prices that may make poor households who lack these resources even more vulnerable to seasonal food insecurity because their access to food is seriously undermined by global market forces.

Ethnographic Fieldwork on Mossi Food Security

You know, food security has improved a great deal since the Sahel droughts of the 1970s and 80s. We don't have famines anymore. In fact, I was traveling to a northern part of the country last year to monitor local conditions. Meteorological data indicated that rainfall was low and poorly distributed. Also, satellite imagery revealed that vegetation for that time of year was far below its seasonal average. We wanted to see for ourselves what was going on because these indicators looked bad. I spoke with a farmer and asked him how he was being affected. He told me, 'I'm not worried. Conditions are bad but there won't be a famine. There can't be famines anymore.' I asked him to explain why. He replied, 'Because of this!' and took a cell phone out of his pocket. The farmer elaborated, 'You see, as soon as things look bad, I get on the phone and call around to all my relatives. I tell them things are bad and ask them to send help – to send money – before things get worse.' (interview ouaga_01_07082010)

This passage is from field notes of a conversation the first author had with an agent from the Famine Early Warning System (FEWS) Office of Burkina Faso in 2010. West and the second author¹ first began working in Mossi communities on the northern Central Plateau of Burkina Faso in 2002. In 2004, our preliminary research was supplemented by an entire year of fieldwork in the Department of Kongoussi, which lies within Bam Province in the Center North Region of the country. Since then, West and Somé have returned three times for brief two- or three-week periods in 2010, 2011, and 2012. The initial visit in 2002 made a profound impression on us and drew our attention to issues of household food security.

Fieldwork in 2002 took place in the Department of Rollo on the southern fringe of the Sahel. The area was experiencing a period of acute food insecurity and many classic coping strategies were immediately apparent (Corbett 1988; Maxwell 1996). Residents were skipping meals, feeding only their children, and consuming wild plants regarded as "famine foods." There was ample food available in the *marché* and village shops, but people expressed their disgust of the outrageous prices for millet, maize and sorghum. Poor rainfall in the previous rainy season (i.e., 2001) caused crops to fail and contributed to local grain shortages. Rollo had no telephones, electricity, or cell phone reception at this time. Likewise, the road connecting it to the regional capital, Kongoussi, was crude and nearly impassable by anything other than a motorcycle during the rainy season. While traveling to Kongoussi or the capital city Ouagadougou, families in Rollo frequently gave us notes they wanted us to deliver to their relatives who worked in these urban areas. They contained pleas for help and we always returned with small sacks of grain sent by kin. We got the sense that Rollo was in a state of extreme food insecurity that bordered on famine and we were the main conduit for assistance because Rollo had no cell phone or other communication services.

In 2004, things were starkly different. The previous rainy season (i.e., 2003) was ideal and rainfall was evenly distributed over several months with no long dry periods. People reported record harvests and granaries were overflowing with grain (West 2009). As we conducted

¹Mr. Somé has been a research assistant for West since 2002.

fieldwork and interacted with community members, participants often invited us to eat with them and frequently shared meals with us. No one commented on grain prices and there were few signs of any food shortage. We often witnessed people bringing their animals to sell at the *marché* but this was because they wanted to stock up on millet and sorghum since prices were extremely low.

We were not able to return again until 2010. Again, food security conditions outwardly seemed stable for Kongoussi but there were other signs of social unrest. There had been food riots two years earlier in February, 2008. People took to the streets in several large cities to protest the high cost of food, fuel and other necessities. They had looted stores, burned government buildings, and there was still evidence of these acts. Tensions were high during our visit and many of our friends expressed concern over soaring grain prices. At the same time, however, we observed massive improvements in communication and public infrastructure. Cell phone service extended throughout the country and nearly every farmer in Kongoussi had one. Dirt roads in Ouagadougou had become paved and the highway that connected Kongoussi and the capital city had also been paved.

We were almost unable to return in 2011 because of another round of riots over the cost of living and a mutiny by some of Burkina's military units. Soldiers looted stores in Ouagadougou and many of these remained unopened and damaged. People in Kongoussi were not very concerned about local food shortages due to crop failure but complained about the high cost of rice and grain in local stores and *marchés*.

Our fieldwork in 2012 took place amid serious unrest due to the crisis in neighboring Mali along with heightened food security concerns across Burkina Faso. Media reports talked of an impending famine for the West African Sahel that could potentially be on the scale of the 1983–5 Sahel Famine. The FEWS Office of Burkina was issuing alerts and donors had begun mobilizing food aid. There were refugee camps for displaced Malians in Ouagadougou and along the Mali/Burkina border. UNHCR trucks regularly drove by on the highway going through Kongoussi. These conditions provided the opportunity for observing conditions of elevated food insecurity for Kongoussi.

As we spoke with local people in Kongoussi, however, some of them reported that indeed things were grim. Crops had failed due to poor rains and they were bracing themselves. Others told us that, to the contrary, there had been a drought the previous year but that they were unaffected. We asked about the possibility of another famine and many expressed views similar to that of the farmer quoted above. They felt that famine was a thing of the past and that it could not happen again in Kongoussi. These sentiments prompted our interest in investigating these beliefs to examine trends in food security for Kongoussi over time.

Based on these intermittent observations, we have a strong impression that food security is improving. Conditions in 2002 were clearly “bad” but this fieldwork took place in June through August in the year following a poor harvest. This is the period of *soudure*, or the hungry months of seasonal famine (McMillan 1986). During a “good” period (i.e., 2004), we spent an entire year in Kongoussi and observed a complete agricultural cycle. Thus, we

have a rough sense of interannual and intra-annual food security variability. The goal is to address and objectively answer the question, “is food security improving?”

Methods and Data

This study draws on over a decade of intermittent ethnographic fieldwork in the northern Central Plateau Region of Burkina Faso. We use data from fieldnotes, household surveys, and interviews conducted in 2002, 2004, 2010, 2011 and 2012. As discussed below, the 2012 fieldwork was geared toward collecting perceptions of food security trends and this article draws mostly on these most recent data. These qualitative data are supplemented by quantitative secondary data that we use to triangulate and validate the perceptions of farmers, NGO agents, and government officials. These include monthly grain price data for the market in Kongoussi.

The 2012 fieldwork consisted of a modified Participatory and Rapid Rural Appraisal (PRRA) technique (Chambers 1981; Chambers 1994). The goal was to quickly and efficiently collect information on ecological and climatic change for the northern Central Plateau and understand their implications for food security in the region. We contacted prospective participants by phone beforehand based on previous research and informed them of the research goals. Once we arrived in Burkina Faso, we met with these contacts and interviewed them using an informal topic guide. We then asked them to refer other people with expert knowledge who would be willing to meet with me. We also selected local experts who we knew in the Kongoussi area from the previous household survey.

Altogether we interviewed twelve experts consisting of: four male local farmers (one elder and one middle-aged); three male development NGO officials; one female forestry agent; one male agricultural extension agent; one traditional chief; one national FEWS agent; and one male local historian. Unfortunately, it was not possible to include female farmers in the PRRA. Interviews took place in July and August, which is the heart of the agricultural campaign when few people had time to speak with us - especially women who provide most of the farm labor. The forestry agent, a woman who grew up in Kongoussi and is from a farming family, did provide insights from the perspective of local women.

In order to elicit information and make the interview participatory, we provided each participant with four visual prompts. The first prompt consisted of a 1992 black-and-white (1:20,000 scale – zoomed to ~1:2,500) aerial photograph² of their village and its immediate surroundings. The second was a color 2012 GoogleEarth (high resolution GeoEye) satellite image³ matched to the aerial photo. The third visual was a chart showing mean annual rainfall for the Kongoussi meteorological station from 1946–2010⁴. The fourth was a map showing Normalized Difference Vegetation Index (NDVI) trends for the Sahel region of Africa. We would initially show each expert the photo, image, graph or map and briefly explain it. Then, we’d ask the participant to tell us what they saw in the handout and describe observed vegetation patterns. Most of the experts we consulted had some initial

²Aerial photos for the villages of Sakou, Kouka, and Loulouka were obtained through the *Institut Géographique du Burkina* (IGB).

³This image was viewed and printed using GoogleEarth on 28 July 2012 but the GeoEye image was retrieved on 26 January 2012.

⁴Rainfall data was graciously provided by the Direction de la Météorologie du Burkina Faso (METEO)

difficulty understanding how to “read” the visual materials but once they identified geographic features like roads or buildings, they became very interested in describing broad and subtle details of landscape change between 1992 and 2012. Participants also readily identified periods of drought in the rainfall chart and discussed their personal experiences of the Sahelian droughts of the 1970s and 1980s.

Several experts – especially the farmers – expressed a great deal of interest in the photos, images, and graphs. They commented that these documents show what they themselves know: their environment and rainfall have changed dramatically over the years. Yet, their personal experiences are based on constant, daily, and routine interactions with the environment. The bird’s eye-view allowed them to see these changes over a large area at two discrete points in time. Likewise, the rainfall chart illustrated how previous droughts were extreme in terms of their severity and duration. In short, these visual aids made the interview participatory because people could point to specific areas on the photos or periods on the chart and talk about their personal experiences or recollections. We left copies with the participant at the end of our conversation and this was greatly appreciated. One farmer interacts a lot with government agencies, NGO officials, and other researchers. He commented that, “I’ve given outsiders a lot of information about me and our village over the years but this is the first time I’ve actually had someone give *me* any data!”

Our ethnographic data spans a short time period from 2002 to 2012 and is discontinuous. We used consumer retail prices for millet as another indicator of food insecurity. Grain prices are routinely monitored by the *Société Nationale de Gestion du Stock de Sécurité Alimentaire* (SONAGESS) of Burkina Faso through their *Système d’Information des Marchés* (SIM). Monthly mean consumer grain prices are available for the Kongoussi market and this record extends from 1992 through 2012⁵. We used millet because this is the most commonly purchased cereal for rural Mossi households and has the most complete record. These prices are in the local currency, CFA (francs Communauté Financière Africaine – XOF)⁶ were imported into MS Excel and then indexed to January, 2010 using the monthly consumer price index (CPI) for Burkina to account for inflation⁷.

Results

The Participatory Rapid Rural Appraisal yielded a diverse range of perceptions on changes in the environment and climate. At the same time, it yielded fairly consistent perspectives on food security. The West African Sahel had undergone a thirty-year period of reduced annual precipitation termed, “Sahelian desiccation,” from roughly 1970 to 2000 (Hulme 2001). Numerous scholars have documented the impact of this long-term drought on rural livelihoods and identified the ways in which smallholders have adapted (Mortimore and Adams 2001; West 2010). Climatologists have cautiously determined that Sahelian

⁵Data from 1992 to 2002 was graciously provided by the SONAGESS office in Ouagadougou. Data from 2002 to 2012 was obtained through the UN World Food Programme VAM Country Report Portal at: <http://foodprices.vam.wfp.org/Analysis-Monthly-Price-DataADV.aspx> (August 15, 2013)

⁶\$US 1 = ~500 CFA

⁷The monthly CPI for Burkina Faso was obtained through two sources. One is the Banque Centrale des États de l’Afrique de l’Ouest (BCEAO) at: <http://edenpub.bceao.int/rapport.php>. Another is AFRISTAT at: <http://www.afristat.org/publication/acces-direct-aux-donnees>. (August 15, 2013)

desiccation has ended and suggested that the region has entered a period of rainfall recovery (Nicholson 2005).

Moreover, analyses of satellite imagery have detected spatially and temporally coherent patterns of increased vegetation in several parts of the Sahel and particularly the northern Central Plateau (Herrmann, Anyamba and Tucker 2005). There is a distinct “greening of the Sahel” beyond that which can be explained by rainfall alone. There have been extensive development efforts to combat desertification in the study region by constructing a variety of anti-soil erosion barriers or reforestation. These soil and water conservation (SWC) measures consist of contour stone bunds (popularly called “*diguettes*”), semi-permeable dikes, and *zai* pockets, which are shallow pits with low dirt berms in which farmers plant cereal crops with small amounts of compost. These SWC techniques have been enormously successful (Reij, Tappan and Belemvire 2005; West 2013) and may be contributing to the enhanced greening signal (Herrmann, Anyamba and Tucker 2005). They have increased cereal yields by 40 to 100 percent in fields treated with SWC compared to those that are not (Reij, Tappan and Smale 2009: 56).

The PRRA fieldwork was designed to elicit personal experiences of these changes in vegetation and precipitation in order to understand how regional processes of Sahelian desiccation, rainfall recovery and greening manifest in local landscapes. In looking at the annual precipitation chart, interviewees quickly noted the periods of reduced rainfall from 1968 to 1972 and from 1983 to 1985. In terms of the drought of the 1970s, one farmer recalled:

I was born in 1963. I remember this drought. The whole lake (*Lac du Bam*) dried out. You could walk across the dried out lake bed from Kongoussi to Bam. At this time, the Government was constructing the *Affaires Sociales* buildings. They had a Food for Work program. People who helped with the construction were paid in bags of grain flour and oil. They received four liters of oil. No one had any grain because the rains were so bad for so long. The only food anybody had was from the Food for Work project. (PZ, Loulouka, 8/7/2012).

Lac du Bam is the largest natural lake in the country. It is approximately 30 km long and 0.5 km wide. The lake is quite deep and usually full of water even at the height of the dry season. Thus, it is astounding to hear that it had dried up completely. Another elder local farmer reported:

This drought was really bad. Erosion had begun to occur and gullies were expanding. Trees died and fell into the gullies. For three years, there was not even enough rain to allow wild grasses and plants to germinate and grow. People couldn't even gather the wild grasses they use to construct *greniers* (granaries). (PO, Pouni, 8/3/2012).

Again, this statement attests to the severity of the drought and its effect on the surrounding landscape. Droughts are common in this part of the Sahel and frequently manifest as one- or two-week dry spells during the rainy season. Mossi farmers often use the term “drought” to refer to rainy seasons that are too short, have poorly distributed rainfall events, start late, or

end early (Roncoli, et al. 2003). They are episodic and multi-year droughts of this magnitude are rare.

As participants consulted the rainfall chart, they readily identified the second great drought of the Sahel that occurred in the mid-1980s. One of the same rural producers reported:

See these dry periods? I remember these droughts of the 1970s and 80s. They are very apparent. I remember 1984–6 because I had been in Côte d'Ivoire part of that time but came back to Kongoussi. It was very bad and crops had entirely failed. The Government did not even have enough grain to help. It affected all of Burkina. I used all of my cash from working in Côte d'Ivoire to buy grain for the family. There was no outside help. (PZ, Loulouka, 8/7/2012).

The same elder farmer referred to the two periods of low rainfall and talked about the second drought:

At this time, you could find only two or three families out of 20, who had enough food to eat. Lots of people simply left between 1984–6. You know, almost half -- or maybe a quarter -- migrated away to the south. There was a significant exodus. This drought was so bad it even affected people in the south. They couldn't grow enough food to send here. (PO, Pouni, 8/3/2012).

These experiences are reminiscent of the “Hyena and the Hare” folktale. These droughts were severe, affected everyone throughout the community – or even the entire country – and practically “no one had anything to eat.” As we discussed these events, we asked about how they compared to the current situation. We explained that last year's drought was also bad and that I had heard reports that another great Sahel famine was looming. These men said that indeed rains the previous year were poor and that some people were suffering. They insisted, however, that this was not everyone. Again, the elder stated:

The last year was bad in terms of rain . . . Out of 20 families here in our village, at least ten don't have enough food. There is always hunger here in Pouni. But there are people who left here and established farms in the south. They maintain contact with their kin here in Kongoussi. One of these people is a son of Pouni and he has a large farm with tractors. He has his own personal fields and they don't have the same problems we do with rain. He grows a lot of grain and recently shipped an entire truck of ten tons of sorghum and maize. He sells it to people here in Pouni at a reduced price. He is near Dédougou. He sells it for 19,500 CFA per 100-kg sack [the current price was 22,500 CFA at the Kongoussi *marché*]. He does this to help out his natal village. Other people traveled south to visit their kin and tell them they are suffering. They come back with five sacks of grain. There are also state-run *magasins* (store rooms) here in Kongoussi that sell grain at reduced rates. (PO, Pouni, 8/3/2012).

In response to my comparison of the current situation with the past, the farmer in Loulouka asserted:

Now? Today? No, you see. Famines like that can't happen anymore. The Government helps and is able to sell grain at low prices. There are also NGOs that help. Famines like that are a thing of the past. (PZ, Loulouka, 8/7/2012).

This was a common sentiment among the farmers with whom we conducted the PRRA. They felt that famines like those that occurred in the 1970s and 1980s could no longer occur. Farming systems had adapted to decreased rainfall and there was a lot more infrastructure that allowed the government and development NGOs to intervene early before food insecurity became outright famine.

Showing the same visual materials to some government officials and NGO staff elicited similar optimism. The FEWS agent in Ouagadougou explained that this is the whole purpose behind Burkina's famine early warning system. They monitor conditions throughout Burkina and the entire Sahel so that they can respond quickly and appropriately to instances of food insecurity. He stated that the current situation was bad and the presence of refugees from Mali made it harder in drought-affected areas. But unlike the previous Sahelian droughts, this did not take them by surprise. FEWSNET Burkina officially alerted donors, the Burkinabé government, and NGOs who in turn mobilized resources in response to these warnings.

The director of a development NGO called *Wende Manega*⁸ in Kongoussi confirmed this. They knew that the 2011 harvest had been poor and were concerned about food insecurity in the department. The Government of Burkina issued an alert and officially released national grain stocks to the market. NGOs, missions, private companies and individuals could purchase this grain in bulk at a government discount. The European donors who fund them offered to provide additional support so that *Wende Manega* could buy this grain from government warehouses, transport it to Kongoussi, and then sell it at a *prix social* (subsidized price) to anyone in the villages in which *Wende Manega* operates. *Wende Manega* was allowed to then take any profit from these sales to support other programs. They chose to use their profits to purchase local sorghum and millet from farmers or grain traders in Kongoussi and support them. *Wende Manega* then transported this local grain to villages and distributed for free to needy households through their respective village committees. A good logistical network, cooperation, improved roads, and coordination among government agencies and NGOs made this a much better response to food insecurity than those of the 1970s and 1980s.

The responses to food shortages in 2012 by the government, FEWS, and NGOs differ markedly from those by large humanitarian organizations and the disaster relief industry as criticized by Alex de Waal in his book *Famine Crimes: Politics and the Disaster Relief Industry in Africa* (2002). Recent food riots against the government demonstrate that citizens of Burkina Faso hold its leaders accountable for its actions and that food security is part of a larger grass-roots political agenda. Moreover, our fieldwork has documented how local NGOs like *Wende Manega* and individuals actively participate in the food aid process -- they are not dependent solely on de Waal's "humanitarian international" of elite

⁸This is a pseudonym.

international relief organizations. In fact, they exemplify how Africans are finding local solutions to their long-term food security problems.

Our participatory exercises also asked experts to express their views on regional desiccation and greening. Farmers said that they thought the rains had improved since the 1990s and pointed out that you can see this in the graph. In reference to the aerial photograph and satellite image, people immediately said they see more trees. They also noted the extensive networks of narrow lines that are absent from the 1992 photograph but appear prominently in the 2012 satellite image. These are SWC semi-permeable rock dams and the ubiquitous *diguettes* discussed earlier. As the *vieux* (elder) of Pouni explained:

There you see? You see all those little lines and all those trees. There are lots more trees! We have invested a lot over the years in *diguettes* and reforestation. The *diguettes* retain soil and trap seeds. These seeds don't wash away and stay trapped behind the stones where they germinate and grow . . . All these SWC projects have helped increase rainfall . . . We have also been engaged in reforestation projects since the 1970s. There was a Peace Corps volunteer here in Pouni in 1977 and we reforested 30 hectares . . . Trees bring rain. They attract rainclouds. I have lots of *diguettes* in my fields. I have planted lots of trees. So, yes, the rains were poor last year but this did not affect me. With SWC improvements, even just 350 mm of rain allows me to provide for my entire family. (PO, Pouni, 8/3/2012).

We spent an afternoon visiting a traditional local chief of a village outside Kongoussi. We talked about the harvest of 2011 and asked if it had been poor in his community as well. He said it was bad for many households but not for him. The chief explained that he tries to conserve the soil and use improved methods. His children are all very young and he can't invest in *diguettes* but he does have animals and is not "afraid of hard work." He went on to state:

Did the bad rains last year affect me? No, the rainy season was not bad for me. In fact, my *grenier* [granary] is full. I harvested ten *charettes* [donkey carts at ~190 kg grain/cart] of sorghum and millet. This is because I have dug lots of *zai* and this means my fields can withstand poor rainfall. (RO, Sakou, 8/3/2012).

Other farmers confirmed this view that reforestation efforts, improved agricultural techniques and SWC investments had helped them adapt to drought.

As the first author has written elsewhere (West 2013), not all households have the resources to prepare *zai* pits or participate in SWC activities. They lack the labor to dig pits through lateritic soils during the dry season or animals for producing compost. Many Mossi families in Kongoussi are desperately poor, cultivate small fields that are highly degraded, and have few opportunities for improving their conditions. In some cases, these are households from lineages that were the last to settle in an area and do not have access to sufficient land of good quality. They are marginalized from village groups due to their lineage status and have low social capital. Some of these households have high consumer-producer ratios where households consist of few able-bodied adults and many children, which makes it difficult for them to raise enough food (West 2009). In some cases, husbands have migrated away from the village leaving their wife and children to fend for themselves. In other cases,

people simply waste their time all day at *dolo* (sorghum beer) stands and neglect their crops. Thus, some households are chronically food insecure for structural reasons (i.e., lineage status or female-headed) or idiosyncratic ones (i.e., stage of the domestic cycle or misplaced priorities).

Showing the visual materials and engaging in a similar dialogue with provincial agricultural and forestry experts elicited contrasting opinions. We conducted the PRRA with a woman who was a *Chef de Zone des Forêt et de l'Environnement* (Forestry and Environmental Protection Extension Agent). She had been born in Kongoussi and grew up in the area. The forestry specialist confirmed that, indeed, the area was greening and this was due in large part to reforestation projects. Villagers had learned the value of trees and taken measures to protect bush areas where there are forest remnants. She pointed out, however, that deforestation was still a massive problem due to population pressure and that natural forests continue to disappear. Recent reforestation efforts account for a small percentage of the overall area that has been deforested over the last 100 years.

She also explained that farmers overwhelmingly prefer exotic trees like Neem (*Azadirachta indica*) and mesquite (*Prosopis juliflora*) but this means that “local species are disappearing.” Important native trees like Néré (*Parkia biglobosa*), karité (*Vitellaria paradoxa*), and baobab (*Adansonia digitata*) are in serious decline because people cut them down and rarely replant them. These trees are especially important for women because they provide leaves for sauces, firewood, or edible fruits and pods. The *forestière* emphasized that the disappearance of these species had a greater negative effect on women than men. She further explained that soil degradation continues to occur and much of the greening one sees in the images due to the expansion of exotic species. Thus, this increased tree cover comes at the expense of biodiversity.

We also met with the *Directeur Provincial de l'Agriculture* (Provincial Agricultural Director – DPA). He said that SWC and reforestation projects have had a positive impact on the landscape. He was not surprised by the visual materials but pointed out that not all villages have participated in these kinds of environmental protection programs. In response to the rainfall graph, he noted that there is a slight rise in annual rainfall since the 1990s yet it does not show how rainfall is distributed over the course of the rainy season. Rains continue to be poorly distributed and they have experienced recent floods. Thus, higher precipitation alone is not necessarily beneficial. The DPA also said that the rains last year were erratic; they had started on time and the rainy season had initially seemed well-established. After a few weeks of good rains, however, they suddenly stopped, which explains why crops failed (in 2011). Ultimately, he said: “the *diguettes*, other SWC techniques, and reforestation efforts have improved the local environment but I am not sure this has actually contributed to greening, improved rainfall, or decreased hunger beyond just individual households.”

The perspectives of these government officials are less optimistic than those of NGO staff, farmers, and local chiefs. They indicate that beneficial changes in tree cover, precipitation, and soil erosion are counterbalanced by continued threats to biodiversity, extreme climate variability and ongoing land degradation. There is definitely a diversity of opinions on greening and rainfall recovery that the visual materials helped elicit. Where some

participants see the expansion of trees in the images, others see the spread of exotics and the loss of native species. Similarly, higher annual rainfall may obscure more important characteristics such as the timing and distribution of rain over the course of the rainy season (Roncoli, Ingram and Kirshen 2002; West, Roncoli and Ouattara 2008). Several participants felt that these changes and the expansion of infrastructure had decreased food insecurity and made famine “a thing of the past.” Thus, the next section assesses these claims by looking at food insecurity trends using quantitative secondary data.

Trends in Retail Grain Prices

The PRRA evidence demonstrated that farmers have adapted to droughts and desiccation by adopting SWC measures to intensify their agricultural practices. They feel they have successfully increased food production, which is part of overall food security. The other part of food security involves access to food – the ability to purchase or obtain food when harvests fail. When households on the northern Central Plateau cannot produce enough grain, they resort to market transactions to make up for shortfalls. Thus, grain prices can be used as an indicator of food accessibility. High prices indicate stress and low access while low prices indicate the opposite. As discussed in the methods section, monthly grain price data are available for the Kongoussi market and these provide continuous quantitative information on food access with high temporal and spatial resolution. They can indicate trends over a relatively long period of time.

Figure 1 shows the real retail price for millet at the Kongoussi *marché* from 1995 through 2012. It shows that prices are very volatile and fluctuate widely on inter-annual and intra-annual timescales. For instance, millet prices were at their lowest (91 CFA/kg) in February, 2004 but spiked to their highest (250 CFA/kg) point one year later in August, 2005. These prices are affected by seasonality; prices peak in June, July, and August but drop after the harvest in October, November, and December. To a certain extent, the peaks and valleys reflect regional rainfall where droughts and floods result in failed crops and, hence, high grain prices. The record highs of 2005 were due to a locust infestation that affected a large portion of Burkina Faso.

The extreme 2012 spike is due to poor rainfall in 2011, the influx of Malian refugees, and global rice prices. Like other anthropologists, we realize that the global food crisis is affecting food insecurity in local contexts and seek to understand the particular mechanisms (Fazzino and Loring 2009; Mazzeo 2009). Grain markets in Burkina Faso are liberalized, which means there is little or no government interference in grain prices (Bronkhorst 2006). As discussed above, the Government of Burkina stocks grain and releases these stocks to the public as food emergencies develop or prices rise. It relies on private traders, Private Voluntary Organizations (PVOs), and NGOs to efficiently distribute these stocks based on market conditions. As a consequence, these government stocks and other locally produced grains can flow out of the country – wherever prices are highest. Likewise, food aid organizations like the World Food Programme (WFP) and Catholic Relief Services Burkina Faso (CRS – also called “CATWEL”) encourage the local purchase of cereals for their Title II and emergency programs. The locust attack of 2004–2005 affected Burkina Faso and surrounding countries. Food aid for northern Burkina, Mali and Niger was bought in

southern parts of Burkina Faso, which caused cereals to disappear entirely from local markets within the country (Bronkhorst 2006: 12). This also happened in 2012 as WFP, CRS/CATWEL and other relief organizations bought up local grain to provide food aid to refugee camps.

Local millet prices in Burkina Faso are influenced by global food prices through rice imports. Rice is the main cereal consumed by Burkina's urban population. Although the country produces rice, people in cities prefer imported varieties, which they find easier to prepare, more affordable, and better suited to their tastes (Bronkhorst 2006). Figure 1 above shows the relationship between the FAO Cereal Price Index and local retail millet prices. A Pearson's r correlation coefficient was computed to assess the relationship between millet prices and the FAO Cereal Price Index using a 3-month lag. This relationship is positive but weak ($r = 0.13$), which is consistent with more sophisticated econometric studies of regional grain markets in West Africa (Brown, Hintermann and Higgins 2009). Because people in Burkina's cities rely almost entirely on purchased food, they are highly dependent on the market and strongly affected by price swings (Martin-Prevel, et al. 2012). Residents of the capital city Ouagadougou frequently comment on the high cost of living and state, "*On ne va pas manger du riz!* (We will no longer eat rice!)". This underscores how rice is considered the most important food and suggests that Burkina's urban residents switch to other cereals when it becomes too expensive. During the global food price crisis of 2008, Martin-Prevel et al. noted that the price of rice and millet both rose by 53 percent between 2007 and 2008 (2012:1751). Thus, urban preferences shift from rice to other cereals, such as millet, as the price of rice spikes. This shift then affects the local price of other cereals in local markets throughout the country. This effect can be seen for Kongoussi in Figure 1 where millet prices are relatively high in 2008 but not as high as one would expect based on the FAO Cereal Price Index.

Rural residents of Kongoussi also blame the large grain traders. They charge that these private companies withhold grain from the market as prices rise. This speculation drives prices even higher as rice, millet, maize and sorghum become scarce. Again, the Government of Burkina offsets grain speculation by releasing the national stock and these actions partially explain some of the sudden drops in millet prices seen in Figure 1. As an example, millet prices reached a high of 247 CFA/kg in September of 2005 but dropped to 111 CFA/kg two months later in November. This decline is due to the post-rainy season harvest but also to the 36,000 tons of grain released by SONAGESS (FEWSNET 2005).

Millet price data and the FAO Cereal Price Index are often out of phase – one rises while the other falls. In some cases, good rainfall conditions result in high grain production and low local millet prices despite high global cereal prices (e.g., 2008). In others years, local millet prices can soar because of regional crop failure and the flow of grain out of Burkina to neighboring countries – even though global food prices are low (2005). In 2012, millet prices spiked because of poor rains and the crisis in Mali. At the same time, global food prices were relatively high as reflected in the FAO index. Combined, these three factors produced the highest millet prices in the period of record. Thus, the relationship between global food prices and local grain prices is based on complex market and agroclimatic interactions. Nonetheless, both Kongoussi millet prices and the FAO Cereal Price Index

trend lines in Figure 1 show a clear upward trend from 2007 onward. If a global food price crisis like 2008 simultaneously occurred with a severe drought, the effects on food insecurity could be devastating.

As an elder Mossi farmer reported above, a certain portion of the population never has enough food. They cannot produce enough grain for household consumption due to labor shortages, low soil fertility, and erratic rainfall. Some of these Kongoussi households engage in non-agricultural income-generating activities such as artisanal gold-mining, wage work, small commerce, or *dolo* selling. Thus, they can make up for production shortfalls by buying grain. Some of them shrewdly do so immediately following the harvest and stock this grain for later periods. Unfortunately, we encountered numerous households in our fieldwork who cannot possibly raise enough cereals to feed themselves *or* buy it because they lack financial resources. These are the truly vulnerable who are targeted to receive food aid from local NGOs. Thus, food security has improved for average or wealthy Mossi households but the poorest of the poor remain chronically and structurally food insecure.

Conclusion

Most Mossi households are becoming less food insecure due to greening, improved rainfall, and SWC investments that have increased grain production. At the same time, however, their ability to access grain through market exchanges is eroding. When floods, droughts, or locust attacks exceed farmers' adaptive capacity and crops fail they become dependent on grain purchases. These are tied to world food prices, which can cause local grain prices to soar. We are starting to see how local environmental conditions interact with global markets to produce periods of food insecurity. Some farmers are optimistic and expressed confidence in their ability to withstand climatic shocks. They also feel that improved infrastructure and contemporary food aid programs prevent people on the northern Central Plateau from suffering like they did in previous droughts.

Getting back to the story of "The Hyena and the Hare," are famines a thing of the past? We guardedly say, "maybe." The severe droughts during the period of Sahelian Desiccation lasted three or four years. No such climatic event of this magnitude or duration has occurred in this part of Burkina Faso since. Likewise, political instability in neighboring countries could again send more refugees into the country and overwhelm national food systems. A locust attack, a civil war, and another global food crisis could all occur simultaneously and undo decades of progress toward greater food security. Even as droughts happen, a relatively large proportion of households are able to harvest enough grain. Unfortunately, hunger has not been completely eradicated and there is certainly a significant number of households who are chronically food insecure. These are households who are consistently unable to produce sufficient grain through their own farms and who are likewise unable to make up these shortfalls through grain purchases. The steady rise in grain prices is likely to make these vulnerable households even more food insecure.

There certainly have not been famines like that described in the "Hyena and the Hare" in recent decades. There have not been instances where "*no one* had *anything* to eat." When something bad does happen, though, and people resort to selling off their livestock to buy

grain it looks likely that they will be forced to sell ever more animals and probably more valuable ones at that. They won't have to sell their own mother but they might have to sell their most precious cows, goats, and sheep. NGOs can provide some assistance to help the most vulnerable households cope with temporary seasonal food insecurity but rising grain prices will likely make their bad situation even worse.

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Figure 1.
Retail millet prices and FAO cereal price index, 1995 to 2012