

**Michigan State University
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Strengthening Regional Agricultural Integration in West Africa

A Proposal to the Syngenta Foundation for Sustainable Agriculture

Revised, November 15, 2008

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1. Background and Justification

Since the end of the 1980s, many West African countries have increased their reliance on regional specialization and trade as important parts of their strategies to assure the food security of their populations and to spur market-led agricultural growth. West Africa exhibits wide agro-ecological variation, opening the scope for productive agricultural trade based on comparative advantage. In the face of soaring food prices and export bans by some food exporters in 2007-08, however, many countries in West Africa are attempting to increase their food self-sufficiency in order to reduce their reliance on agricultural trade. This “agricultural globalization in reverse”, described in detail in Appendix 2, raises serious questions about how long-term food security can be achieved in the region and at what cost. The answer to these questions depends on a number of empirical issues concerning:

- (a) The degree to which world prices for tradable commodities are transmitted back to farmers,
- (b) What their supply response is, and
- (c) How consumers adapt to higher prices.

Specifically, the following questions need to be answered in order to design better policies to promote sustainable agriculture-led growth in the subregion in the context of more open markets:

Price transmission

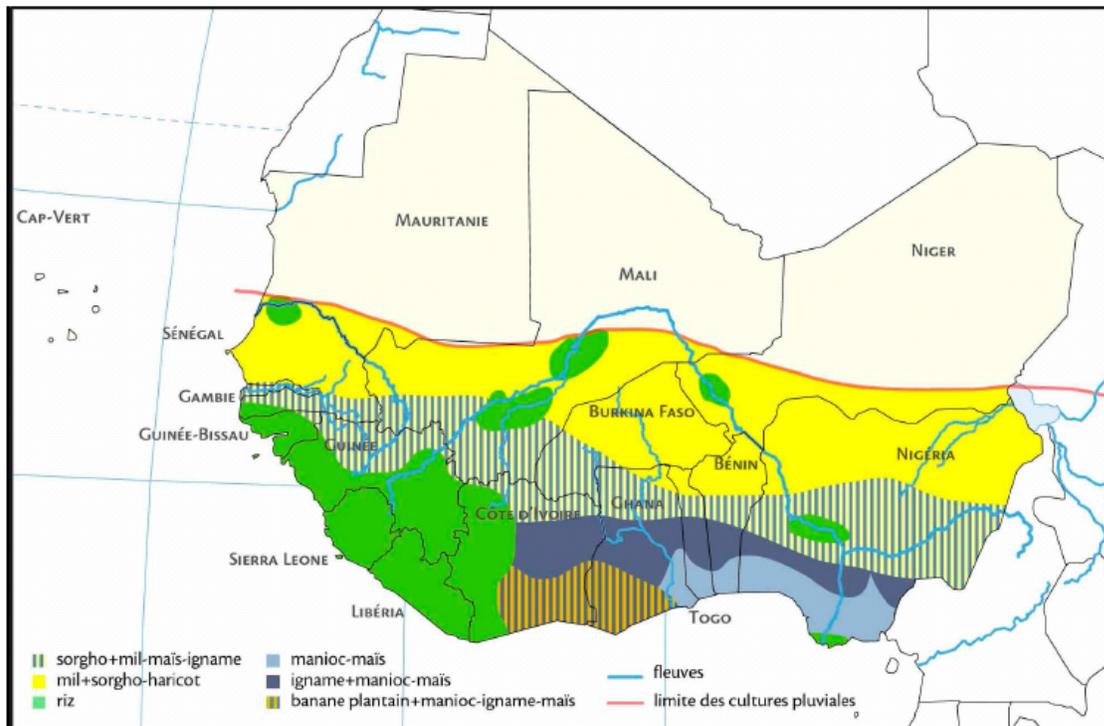
- To what degree have world prices been transmitted back to farmers as opposed to being captured elsewhere in the value chains? The price transmission question pertains both to *geographic* price transmission and *inter-commodity* price transmission. Geographic price transmission refers to transmission of world prices for a given commodity (e.g., rice) to domestic markets for the same commodity. Inter-commodity price transmission, which is probably a more important question for West Africa, deals with the degree to which world prices for widely traded commodities, such as wheat and soybean oil, have been transmitted back to locally produced potential substitutes for those products, such as sorghum and cotton-seed oil. In both cases, the research seeks to determine what have been the major factors affecting the degree of price transmission, and what can be done to

assure that long-term trends in international prices are transmitted back to farmers, while not necessarily submitting them to every short-term fluctuation in world prices.

Supply response, including the evolution of trade flows

- Recent research (Blein et al. 2008) has mapped major producing basins for staple crops in West Africa (figure 1). A striking feature of the production basins shown in figure 1 is that many transcend national boundaries. Thus, while the Office du Niger represents a major rice producing basin entirely within Mali, the area of southeastern Mali, Southwestern Burkina Faso and northern Côte d'Ivoire constitute part of a maize producing basin (known as the Kelegougou region) that supplies much of West Central Africa with maize.
- A key question is what are the likely supply responses from those various basins given an expected high price environment? What are likely to be the major constraints to supply response, especially for those basins that encompass parts of more than one country (and thus are potentially subject to differing research, extension, and policy environments)? This supply response includes both the response of farm-level production (e.g., the use of extensive vs. intensive production practices) and the response of the marketing system in linking farmers to growing market opportunities. Analysis of the supply response thus needs to include investigation of both production practices and how trade flows have evolved in response to past price and policy changes and how they are likely to evolve in the future.

Figure 1. Major Staple Food Production Basins in West Africa



Bureau Issala d'après JL Chaléard et CSAO

Source: (Blein, et al., 2008)

- If world prices for major tradable commodities, such as wheat, maize, and rice stay higher for the coming 10 years as projected by FAO, how is comparative advantage in producing different commodities (including local substitutes for these products, such as millet and sorghum) going to be distributed among countries in West Africa? How competitive will regionally produced commodities be vis-à-vis imported food items? The answer to this question will depend in part on the degree to which consumers in West Africa are willing to substitute from imported food items to local products and whether West Africa can begin to produce some of these imported products (such as rice and wheat) more competitively compared to imports.
- Which among the production practices and technologies now available on the shelf are most likely to increase regional food supplies quickly?
- What policies are needed to encourage more widespread adoption?

Consumers' response

- What is the degree of substitution between imported and regionally produced food products (wheat and rice versus local “semi-tradables” like millet, sorghum and cassava)? How might the substitutability of locally produced staples for imported staples be increased in the future, in order to boost demand for local products?
- What are the food assistance programs to the poor that are most compatible with improved production incentives? In other words, what are the best alternatives to current policies, which attempt to protect consumers in low-income, food exporting countries by restricting food exports and removing import taxes on food imports? Failure to identify effective alternatives will likely result in political leaders continuing to rely on trade restrictions during high-price periods, thereby reducing production incentives. The answer to these questions requires a better understanding of consumer behavior with respect to changes in the prices of different staples, as well as a strong understanding of the marketing system.

This proposal lays out a 3-year research and policy outreach program that will address these questions and help feed the information into policy debates in West Africa and among West Africa's development partners. The program will be implemented from Michigan State University's office in Bamako, with strong input and managerial support from campus-based staff. It will also draw on contributions from other partners, especially West African partners in national agricultural market information systems (MIS); national agricultural research systems (NARS) such as IER in Mali, ISRA in Senegal, and INERA in Burkina Faso; and regional policy organizations such as CILSS. For example, MSU has worked closely in the past with CILSS and the West African Network of Agricultural Market Information Systems (RESIMAO) on strengthening the analytic content of the national and regional MIS bulletins. Some of the proposed price analysis and mapping discussed below will be carried out jointly with these national analysts as an extension of these previous efforts. We will also coordinate this work closely with that of researchers from UMR-MOISA (*Unité Mixte de Recherche – Marchés, organisations, institutions et stratégies d'acteurs dans les systèmes agricoles, agro-alimentaires*)

et ruraux), a joint research laboratory of scholars from several French organizations, such as INRA (Institut National de Recherche Agricole) and CIRAD, that have done extensive work in the past on regional trade in West Africa. The program will also draw upon and leverage other research on regional trade that MSU is carrying out in West Africa and in Southern and Eastern Africa under funding from USAID and other donors.

The proposed work is conceptually framed in terms of production basins, consumption basins, and the trade corridors that link them (often collectively referred to as *foodsheds*) rather than in terms of national boundaries. Many of the production basins in West Africa span national borders (e.g., the maize basin that includes southern Mali, southern Burkina Faso, and northern Côte d'Ivoire). Tracing the evolution of these production and consumption basins and associated trade corridors captures much of the dynamics in West African agricultural markets.

2. Goals and Objectives

The goal of this project is to increase the capacity of stakeholders in the Sahelian countries of West Africa to implement more effective policies for increasing productivity of staple crop production and marketing and to expand access to markets (particularly regional markets) for small farmers engaged in staple-food production, thereby increasing their incomes and reducing poverty.

Achieving this goal will require working with West African partners to evaluate different policies in order to assess their ability to increase small farmers' farm-level productivity and access to markets. Specific objectives include:

1. Increasing the availability of information on the effectiveness of different policies to achieve these goals, through a series of applied research activities.
2. Improving stakeholders' understanding of the differential impacts of different policies on productivity, market access, income growth and poverty reduction, through a series of outreach activities aimed at making the results of applied research broadly available to stakeholders in easily understandable form.

The following sections describe in detail the specific research and outreach activities to be undertaken to reach these objectives, as well as the state of the art with respect to the specific research activities.

3. Proposed Research Activities

To address the questions listed above, MSU proposes the following research activities:

3.1 Analysis of Price Transmission

A key question is how much of the recent changes in staple food prices at the international and the regional levels is being transmitted to West African farmers, both for the products that enter widely into international trade (e.g., maize and rice) and for less internationally traded

commodities (e.g., sorghum, millet), through substitution effects. Previous research by FAO and IFPRI have found relatively low levels of price transmission for staple foods for many developing countries, due to high transport and transportation costs, limited competition in the import trade (e.g., due to the presence of parastatals), exchange-rate fluctuations, domestic trade and marketing controls, and limited substitutability in consumption between domestically produced “semi-tradables” like millet and sorghum and internationally traded commodities such as wheat and rice (Benson, 2008, FAO, 1996, Pinstrip-Andersen, 1997). Many of these studies were undertaken several years ago, and it is not clear whether increased trade liberalization has since 2000 has led to greater transmission of international to domestic prices in West Africa. If there is a very small level of price transmission, then one cannot expect any increase in international prices or prices in West African urban markets (due, for example, to increased urbanization) to raise incentives for local production. The analysis of price transmission will involve the following elements:

- A compilation and graphical and statistical analysis of existing data (largely from market information systems in the subregion) on the evolution of prices for key commodities since the mid 1990s (just after the CFA franc devaluation in 1994), compared with world prices of key tradable staples (rice and maize).
 - The prices will be put in a spatial context through development of a series of price-surface maps.
 - Statistical analysis will build upon existing work underway by UMR-MOISA on price transmission for some countries in the region (Burkina Faso, Mali, Niger, Senegal, and Guinea), extending it to other countries in the subregion if data are available and involving analysts from these countries (either from NARS or market information systems).
- The statistical analysis will be complemented with rapid reconnaissance studies carried out in conjunction with market information systems in a few selected countries (e.g., Mali, Niger) to identify key blockages to price transmission (such as informal and formal trade barriers). Some initial work along these lines has already been carried out as background to the document presented by the MSU team at the Geneva Trade and Development Forum (Appendix 2). These rapid reconnaissance studies will take place annually, just before the annual ECOWAS/CILSS West African Agricultural Outlook Conference. They will be coordinated with a re-examination of regional trade agreements led by CILSS and the Ministries of Agriculture of Mali and of Trade of Senegal, as agreed to at the GTDF (coordinated by Issa Martin Bikienga of CILSS). The results thus can be reported to stakeholders (including policy makers and private sector actors, such as traders) attending the conference as a way of monitoring progress on commitments made by West African leaders to reduce intra-regional trade barriers. The results will also be diffused through the various outreach channels described in section 4 below.

3.2 *Analysis of Supply Response*

The analysis of potential supply response to price changes in the region will involve two main activities: the mapping of the evolution of production and trade flows since the mid 1990s and the identification of key determinants of competitiveness of staple food production within West Africa and between West Africa and other regions of the world. This competitiveness depends

on the efficiency and riskiness of both farm-level production systems and of the marketing systems that link farmers with consumers.

3.2.1 Mapping the evolution of production and trade flows

MSU and its partners (e.g., scientists from NARS, such as the subsector economics unit (ECOFIL) of IER in Mali, and analysts from national market information systems) will provide a synthesis of how production of major staples (particularly cereals) and regional trade flows of these products have evolved since the mid 1990s. This analysis, including maps of production and trade flows, will draw on current production statistics (including CILSS efforts at building regional cereal balance sheets) and previous studies of production and regional trade. MSU's colleagues at UMR-MOISA conducted major studies of regional agricultural trade in the subregion in the late 1980s and early 1990s. The project work will synthesize and update those findings (carrying out rapid reconnaissance studies with national market information systems in the region), with an emphasis on how trade corridors have changed over the past 10 years in response to new opportunities and changing regional trade policies. In addition, MSU and CILSS/INSAH (the Institut du Sahel, a research arm of CILSS) coordinated a set of studies in the 1990s on the impact of the CFA franc devaluation on agricultural competitiveness, supply response and trade flows in the subregion. Because the devaluation was a very widespread price shock to the region, synthesizing the results of that previous experience will also help provide insights into how trade may evolve in the current environment. Under USAID funding, MSU is planning to carry out similar mapping for Southern and Eastern Africa, so the West Africa work will be designed in a way to ensure comparability of the two studies and thus get a broader continental view of how staple-food production and trade are evolving.

3.2.2 Analysis of competitiveness and the evolution of comparative advantage

In order to address the issue of how the competitiveness among different production basins within West Africa will change over the next decade and how West Africa's competitiveness vis à vis the rest of the world will evolve, we propose carrying out a series of domestic-resource-cost/import-parity studies for key commodities. While in principle the issue of competitiveness depends not just on commodity-specific conditions but also on general equilibrium conditions, we do not propose developing computable general equilibrium (CGE) models for this analysis for the following reasons:

- CGE models are highly data-intensive if one wants to get the kinds of disaggregated, crop- and location-specific information needed for realistic analysis of the changes in competitiveness of specific crops and production basins. This data intensity, in turn, makes the models costly to develop and maintain.
- Because of the lack of highly site-specific data, CGE models often suffer from over-aggregation and multiple solutions.
- The models are typically complex, making the results of the analysis sometimes difficult and non-intuitive to explain to decision makers.
- Our desire is to develop an analytic tool that local partners, such as market information systems and national agricultural research systems, can easily maintain and update, and whose results are relatively easy to explain to policy makers.

We therefore propose to develop and use two closely related tools for modeling the likely evolution of competitiveness of key staple-food commodities in the subregion: domestic resource cost (DRC) models and a short-term model to forecast changes in import-parity prices based on futures market prices. DRC analysis has been used in previous very useful studies of competitiveness of West African agricultural production, particularly for rice (Barry, 1994, Diarra, 2004, Pearson, 1981, West Africa Rice Development Association., 1974), and it may be possible to use some of the base data from these earlier studies and update them. The DRC analysis calculates the “delivered cost” of agricultural products produced in a given location (e.g., production basin) in various markets and compares those prices with import parity prices for import substitutes and export parity prices for potential exports. A major input into these models are production and marketing budgets. MSU will work closely with NARS scientists and MIS analysts to build upon and, when necessary, extend the budgets they have already developed, thereby adding value to their previous work. Once the base-case analysis has been carried out, sensitivity analysis will examine the impact of changes in cost factors (use of more productive farm-level technology, lowered transport costs due to improve infrastructure or reduced trade barriers, and higher input costs) and in world prices on the comparative advantage (in economic terms), competitiveness (in financial terms), and riskiness of local production. Such analysis will be very helpful in guiding future investments in agricultural technology and infrastructure, such as those planned under NEPAD’s Comprehensive African Agricultural Development Program (CAADP).

MSU has also recently developed a model that provides short- to medium-term forecasting of import-parity prices based on use of futures market prices for tradable commodities and foreign exchange. This approach, which is very closely related conceptually to the DRC analysis, provides a way of helping both private-sector and public-sector actors develop estimates of how high domestic prices can increase without triggering imports. This information will help them set more realistic inventory management policies and market-based safety-nets (including the decision about which source of food supply—domestic production, overseas imports, or regional imports—is likely to be cheapest). MSU will train key Sahelian partners (e.g., in market information systems) in the use and adaptation of this model (for example, how to incorporate and periodically update local transport costs, which are a key element in calculating import parity prices.) This training will take place in conjunction with RESIMAO, the regional network of national agricultural market information systems in West Africa, which covers 8 countries. Previous trainings by MSU on market analysis with this network have involved over 30 national analysts, and we anticipate similar numbers for this training. The aim will be to have a tool that can be managed locally by RESIMAO and the national MIS to make regular updates of their short-term market forecasts. Having a tool for short-term forecasting that is conceptually linked to the longer-term DRC competitiveness analysis will provide local decision makers a consistent set of tools to analyze both short-term and long-term food security policies and investments.

3.3 Analysis of the evolution of consumption & its implications for safety nets

Production evolves in response to demand, and the structure of demand for staple foods has been changing markedly over the past 25 years in West Africa. Six shifts appear to be particularly important:

- A spatial shift, as populations have become more urbanized, most dramatically in the coastal countries, but also in the landlocked nations.
- A shift, partly linked to urbanization and the accompanying time pressure on consumers, away from millet and sorghum towards rice and wheat products, which are quicker to prepare and (until recently) more reliably available through international markets. Previous studies have indicated that this shift seems to have been largely independent of relative prices between rice and wheat, on the one hand, and the local cereals on the other. This suggests that it may take a very large price drop in the price of millet and sorghum (and perhaps also maize) to get consumers to shift back to them, at least if they continue to be sold mainly in unprocessed form.
- An increase in away-from-home meals, particularly as a result of the increasing size and congestion of cities, which prevents many workers from returning home for their midday meals. The street-food and restaurant industries are historically an important pathway through which changes in food consumption patterns take place.
- A shift, also due to time pressures, to more processed forms of staples, such as flours, grits, dehulled grains, and ready-to-prepare cassava products (gari, atieké). This is manifested in the rise of processed local staples (e.g., precooked foinio, diouka, etc.) in West African supermarkets, catering to both the middle class (particularly to families where the women are employed outside the house) and to expatriate West Africans living abroad.
- A rise in the demand for feedgrains (particularly maize, millet and tannin-free varieties of sorghum) for the growing poultry industry.
- The rise of large institutional buyers (particularly the World Food Program), which are increasingly interested in sourcing grain from small farmers, but with the proviso that they meet minimum quality standards.

The project will synthesize existing information on the evolution of consumption over the past 25 years and complement it with insights drawn on the emerging demand, particularly for maize, from the growing poultry subsector and institutional buyers (from planned research to be undertaken with support of the Bill and Melinda Gates Foundation and the William and Flora Hewlett Foundation). This synthesis of previous studies (e.g., the West African Long Term Perspectives Study of the mid 1990s, which looked at the impact of urbanization on demand for agricultural products; and a number of budget-consumption studies that examined the potential for substitution between local and imported staples) will be complemented by rapid reconnaissance or focus-group interviews with retailers and wholesalers to get their perceptions of how consumers are modifying their consumption patterns in light of the recent high staple food prices. Thus, while the project will not undertake any new in-depth consumer studies (due to time and budget constraints), it will pull together a broad array of available and soon-to-be available evidence of how demand for staples is likely to evolve in the major consumption basins of West Africa.

A better understanding of consumption patterns will also help in providing suggestions for the design of market-friendly safety nets. A frequent suggestion for such safety nets is to focus any subsidies on self-targeting foods (those with very low—and preferably negative—income elasticities of demand), so that the poor disproportionately get most of the benefits. In the context of low-income Sahelian countries, do such goods exist? If not, what are alternative

options? These questions cannot be addressed without a better understanding of evolving consumer demand.

4. Outreach Activities

The project will emphasize getting its results in the hands of policy makers, civil society, development partners, and professional/academic audiences in timely and “digestible” formats. As described in more detail below, it will do so through working with networks of policy makers, the private sector, development partners, and researchers at the national, West African regional, and international levels (with the primary emphasis being on the national and regional levels) and through using a wide range of communication channels, from the printed and electronic press to web forums and regional meetings. Examples of outreach activities are described below, and further opportunities for outreach will be identified throughout the life of the project through interaction with the West African research partners, the Foundation, and MSU’s networks of contacts. Suggested outreach activities include, among others:

- **A web forum** on “Agricultural Globalization in Reverse”, to be launched very early in the project, as a follow-up to the very productive discussions held at the Geneva Trade and Development Forum (GTDF). The creation of such a web forum was key recommendation of the participants in the closed caucus on this topic held at the forum. This forum will continue for the life of the project, as it will provide a broad platform for communication among stakeholders, including comparison and discussion of national and regional agricultural and trade policies. The forum will be linked to the project website (described below), providing forum participants easy access to new research findings to help stimulate the discussions.
- **Project website.** As MSU does for all its major food security projects, we will develop a project website on which all project outputs will be posted. Papers will also be posted/linked to the CILSS/Institut du Sahel website, which has developed, with MSU assistance, an electronic library (at <http://www.insahpub.net/>) for research papers on agricultural development in the Sahel; the CILSS Executive Secretariat site (www.cilss.bf), which is in the process of developing a consolidated on-line database on agricultural development in West Africa; and, if desired, to the Syngenta Foundation’s website (www.syngentafoundaiton.org)
- **Development of a list-serve**, linked to the web forum, involving agricultural and trade advisors in key West African government offices (presidencies, prime ministers’ offices, and ministries). The purpose of the list serve will be to make key research findings (via policy syntheses and links to more in-depth analyses) available to these key advisors and to invite them to participate in the web forum. The list of participants will be developed through collaboration with CILSS (which has correspondents in ministries of agriculture in all of its 9 member countries), the Council of Ministers of Agriculture in West and Central Africa (based in Dakar), and the ECOWAS Agriculture Commission, which is coordinating the NEPAD/CAADP activities for West Africa.
- **Preparation of brief (1 paragraph) summaries of key findings**, with links to full documents, to be distributed to organizations such as the Partnership to Cut Hunger and Poverty in Africa, for inclusion in their frequent electronic newsletters.
- **Presentation to national and regional policy forums.** Possible outreach venues include:

- Meetings with key national policy makers, often in the context of related work that MSU is carrying out in the subregion. For example, MSU anticipates working closely with the Malian Food Security Commission (CSA) over the period 2008-11, under a USAID/Mali funded project aimed at strengthening the analytic capacity of the CSA. Results from this Foundation-supported research can serve as input to that program, strengthening the empirical basis for food policy decision making in Mali. Similarly, the project will work closely with national market information system staff and associated NARS researchers in other countries such as Senegal, Mali, and Niger, and will work with them to identify national outreach opportunities to help build national ownership of the research findings.
- The West Africa Agricultural Outlook Conference organized annually by CILSS and ECOWAS. Initial findings on the impacts of trade barriers on transaction costs and trade flows will be presented at the 2009 conference (likely to take place in April), and subsequent findings will be presented at this venue in future years.
- **Participation in radio and television discussions on food policy.** The project staff and partners from West African national and regional research and policy units will contact local media outlets (radio, TV, and the written press) to organize on-air and in-print discussions about regional agricultural trade policies and their impacts on food security and agricultural growth. These can be organized in conjunction with various national or regional meetings, which the press will likely already be covering and which will bring together key public- and private-sector stakeholders. In its previous work in Mali, MSU's in-country coordinator, Dr. Dembélé, has participated in several such discussions on Malian radio and TV, often in Bamanan (a local language), which makes the program widely accessible to the public. One opportunity that will be explored is organizing a discussion with regional and national policy makers on *Africable*, a regional television network headquartered in Bamako that broadcasts to all of Francophone West and Central Africa.
- **National and regional publications.** MSU will work with African partners to diffuse results via national and regional publications that are widely read by West African researchers and policy makers. For example, under its USAID/Mali and Gates Foundation-supported research, MSU intends to work with IER in Mali and IPR/IFRA (Mali's faculty of agriculture and natural resources) to establish working paper series where ongoing research by these organizations can be widely diffused and feedback received on intermediate results, which then can be revised and submitted to various national, regional, and international journals (such as the *African Development Review*). MSU will also work to include such working papers into RePEc (www.repec.org), the widely-used on-line directory of Research Papers in Economics that indexes over 500,000 working papers and journals, thereby making this "grey literature" more widely visible internationally. In addition, CILSS has regular publications on regional trade issues, to which some of the results can also be targeted.
- **International meetings.** MSU will work with the Foundation and its other partners to identify high-visibility international meetings where the project results can help influence ongoing discussions among donors, their African partners, and other development professionals. Examples of such venues include future editions of the Geneva Trade and Development Forum, seminars arranged by the Partnership to Cut Hunger and Poverty in

Africa, and outreach opportunities in Europe, such as meetings organized by the French foundation FARM, which is supporting related work by UMR-MOISA.

- **Professional publications** (e.g., *World Development*) **and popular publications** (*Graines de sel*) on economic and food policy, in both French and English. These contributions will be targeted to reaching both professional and practitioner audiences that are involved in analysis and improvement of development programs in Africa. One advantage of working in partnership with UMR-MOISA is that the project will have broader opportunities to publish results in both Francophone and Anglophone outlets, thereby enlarging the potential impact of the studies.

5. Expected Outputs, Timelines, and Milestones

Tables 1 and 2 summarize the key expected outputs of the project, the times when the various activities will take place leading to the outputs, and milestones for delivery of the various research and outreach products. Table 1 spells out the expected research outcomes that will provide the empirical content for the outreach activities described in table 2.

The project's 3-year time line is also summarized in the calendar shown in Appendix 1. Activities in year 1 will focus on establishing and carrying out the web-forum; developing the maps of regional agricultural production, trade, and prices; synthesis of the existing literature on regional trade and consumption patterns; initial implementation of the import-parity price forecasting model, and initial policy outreach to selected forums. Years 2 and 3 will focus on further analysis of the likely evolution of the production and consumption basins in West Africa and the trade corridors linking them. A central part of this analysis will involve developing the DRC analysis of competitiveness for key staple foods and using the model to analyze the impact of key policy, technology, and infrastructure investments, as well as changes in world prices, on the competitiveness of different production basins in the region. Years 2 and 3 will also emphasize continued outreach to various stakeholders both within and outside of Africa.

Table 1. Expected Research Outputs, Timelines, and Milestones				
Topic	Deliverables	Countries	Crops	Timeline/Milestones
Research on Price Transmission				
<i>Price transmission study</i> a. International prices to national b. Retail to farm level	<ul style="list-style-type: none"> • 1 working paper on international to national price transmission • 1 working paper on retail to farm level price transmission • Policy synthesis on price transmission • Media journal article • Presentations in national and regional policy forums 	Mali, Senegal, Burkina Faso	Maize, rice, millet, sorghum, including analysis of inter-commodity price transmission between internationally traded commodities (such as wheat) and these commodities.	January 2009-December 2009 <ul style="list-style-type: none"> • Working Paper: Sept. 2009 • Policy Synthesis: Dec. 09 • Media journal article: Jan. 2010 • Presentations in various forums: Sept. 2009-March 2010
Research on Supply Response and Trade Flows				
<i>Mapping the evolution of production and trade flows</i>				
<i>Study/synthesis of cereals production and imports trends</i>	1 synthesis report	West Africa	Millet, Sorghum, maize, rice, cowpeas	January 2009 – June 2009 <ul style="list-style-type: none"> • Synthesis report: June 09
<i>Update of trade flow studies</i>	<ul style="list-style-type: none"> • Synthesis report summarizing findings on patterns and trends in regional agricultural trade since 1990. • Maps of trade flows • Annual updates on trade patterns, including the analysis of how regional trade barriers are affecting patterns and costs of regional trade. • Final summary report 	West Africa	Millet, Sorghum, maize, rice, cowpeas	January 2009 – May 2010 <ul style="list-style-type: none"> • Synthesis of prior regional trade studies: July 2009 • Maps of evolution of trade flows: December 2009 • Annual updates on trade flows, including rapid reconnaissance studies with national MIS, leading to working papers (December of each year) and policy syntheses (March of each year—for presentation at annual regional outlook conferences) • Synthesis report: May 2009

Table 1 (continued)				
<i>Analysis of competitiveness and the evolution of comparative advantage</i>				
Topic	Deliverables	Countries	Crops	Timeline/Milestones
<i>National import-parity price studies</i> (carried out in conjunction with national market information systems)	<ul style="list-style-type: none"> 4 country studies estimating the import parity price of rice and maize under different assumptions regarding world prices, exchange rates, and local transport costs 	Mali, Niger, Sénégal, Burkina Faso	Rice, Maize	January 2009 – June 2010 <ul style="list-style-type: none"> Training of MIS in use of model: June-August 2009 Country reports, June 2010
<i>Regional synthesis of parity price studies</i>	<ul style="list-style-type: none"> Report synthesizing the 4 country studies and drawing implications for regional and international trade policy for the 4 countries 	West Africa	Rice, Maize	July 2010 – December 2010 <ul style="list-style-type: none"> Synthesis report: Dec. 2010
<i>Comparative advantage studies using Domestic Resource Cost approach</i>	<ul style="list-style-type: none"> 2 DRC studies, carried out in conjunction with NARS, on the factors affecting the competitiveness of locally produced rice, maize, and sorghum in different markets in West Africa. 	Mali (irrigated and NERICA rice) Mali, Burkina Faso, Ivory Coast (Maize and sorghum)	Rice, Maize, Sorghum	January 2010 – August 2011 <ul style="list-style-type: none"> Working paper (jointly issued with NARS) for each crop: December 2010; Final report: June 2011 Policy syntheses: August 2011

Table 1 (continued)				
Analysis of the Evolution of Consumption & its Implications for Safety Nets				
<i>Review of budget consumption studies</i> to assess scope for intra-commodity substitution	<ul style="list-style-type: none"> • Review of budget consumption studies to assess scope for intra-commodity substitution • Analysis of growing demand for animal feed and from institutional buyers • Focus-group studies with retailers and wholesalers on consumers' adaptation to higher staple food prices 	West Africa	Cereals and other food items	January 2009 – December 2009 <ul style="list-style-type: none"> • Review of previous consumption studies: July 2009 • Report analyzing the growing demand for livestock feed and by institutional buyers: September 2009 • Report on focus-group studies of consumers' adaptation to high prices: December 2009

Table 2. Expected Outreach Outputs, Timelines, and Milestones		
Outreach		
Web forum	Web forum to allow ongoing discussion of the impact of trade policy on national and regional food security. Forum to be linked to project website	February 2009-December 2011 <ul style="list-style-type: none"> • Web forum started by February 2009 and runs for length of project
List-serve for policy makers	List Serve linking key policy makers in West African ministries of agriculture, trade, and other agencies, as well as private-sector actors. Main purpose is to make available to them key policy-relevant research results and induce them to participate in the web forum	March 2009-Dec. 2011 <ul style="list-style-type: none"> • Identify initial list of participants: March-April 2009 • Launch list serve: May 2009
Project Website	Web site to include all project research and outreach documents and progress reports	January 2009-December 2011 <ul style="list-style-type: none"> • Website set up in January 2009 and regularly updated
Summaries of key findings to other web-based outlets	Short (1-paragraph) summaries with hyperlinks to policy syntheses and full reports sent regularly to other web-based newsletters, such as those of the Partnership to Cut Hunger and Poverty in Africa	June 2009 – December 2011 <ul style="list-style-type: none"> • Summaries sent out as each policy synthesis and report is developed, for the life of the project
Outreach via written and electronic press	Short articles and interviews in the popular press and participation in radio and television shows discussing food policy and regional trade (e.g., on the regional network <i>Africable</i>). The target is a minimum of three popular press articles, two radio interviews and one regional television show discussion during the life of the project.	March 2009-December 2011 <ul style="list-style-type: none"> • Press interviews will be tied, when possible, to major outreach events, such as the West African Agricultural Outlook conference.
National and regional meetings	Presentations to key national and regional meetings of stakeholders. List of these venues to be developed in consultation with West African partners, including NARS researchers, national market information systems, CILSS, ECOWAS, and private-sector organizations, such as the West African Agricultural Traders Association (ROESAO).	March 2009 – December 2011 <ul style="list-style-type: none"> • First presentation to be at the annual West African Regional Agricultural Outlook Conference (jointly sponsored by ECOWAS and CILSS) in March 2009. • Subsequent presentations to be scheduled in consultation with stakeholders
National and regional publications	Articles in national publications (such as NARS working paper and research review series) and regional publications, such as <i>African Development Review</i> . Work with African partners in NARS to post their working papers to the INSAH website and to RePEc to broaden the visibility of the national work	June 2009 – December 2011 See table 1 for list of papers by topic and expected dates

Table 2 (continued)		
<i>International meetings</i>	Policy outreach/presentations at key international meetings, identified in conjunction with the Foundation and other partners.	June 2009 – December 2011 <ul style="list-style-type: none"> • GTDF in 2009 – 2011 • Meetings of the Partnership to Cut Hunger and Poverty in Africa (2009 -2011) • August 2010 IAAE meetings?
<i>Professional publications</i>	Journal articles aimed at the research and policy analyst community, in journals such as <i>Food Policy</i> and <i>World Development</i> .	December 2009 – December 2011

6. Implementation Approach & Management

MSU implements all its food security research and outreach programs in Africa in close collaboration with African partners. The key African partners of this project will include national market information systems, national agricultural research systems (such as IER in Mali), CILSS, and (for outreach) the ECOWAS Commission for Agriculture. In addition, as explained above, MSU and UMR-MOISA, through their long histories of involvement in West Africa, have numerous local partners through which outreach activities can take place.

The project will be managed by the Department of Agricultural, Food and Resource Economics at MSU, which, in conjunction with MSU's Office of Contract and Grant Administration, will handle all administrative and accounting reports. Substantive leadership will come from MSU faculty members based in East Lansing and in Bamako, where MSU maintains a full-time office. The principal investigators for the project will be Professors John Staatz, Niama Nango Dembélé, and Eric Crawford of MSU, all of whom have worked on West African agricultural development issues for over 20 years. They will coordinate scientific input from MSU staff and coordination with UMR-MOISA. MSU will arrange a subcontract with UMR-MOISA for its contribution and manage that subcontract; thus, MSU will serve as the single administrative contact point for the Foundation.

MSU proposes that annually it prepare a work plan with its partners, which will be reviewed with the Foundation in order to determine whether any adjustments to the program need to be made, particularly in light of new outreach opportunities and changing economic conditions in the subregion. MSU will provide the Foundation with copies of all research and outreach reports, which will also be posted regularly to the project website, and will consult regularly with the Foundation as needed on the project's progress and new opportunities for outreach.

7. Institutional Capacity

MSU is unique among US universities for its breadth and history of capacity-building programs, applied research, and outreach in Africa. The University has over 150 African-specialist faculty members, is home to one of the 3 largest Africana libraries in the US, is currently involved in over 70 projects in 24 African countries, and over the past 20 years has produced more Ph.D. dissertations on Africa than any other US university. MSU has been deeply involved in research and capacity building in francophone West Africa since the 1970s, including ongoing partnerships with national and regional research organizations (e.g., IER in Mali; INSAH/CILSS for the region). Much of the work has focused on the Food Security (FS) program of the Department of Agricultural, Food, and Resource Economics (AFRE), which has developed what the Rockefeller Foundation called "the largest aggregation of individuals focusing on African agricultural development anywhere."

AFRE's Food Security Group has always had a strong focus on francophone West Africa, with a variety of long-term agricultural support projects in Senegal and Mali as well as at the regional level through collaboration with INSAH/CILSS, NEPAD/CAADP, and SADAOC (the Network for Research on Sustainable Food Security in West and Central Africa). MSU has carried out research and outreach on food security in Mali since 1985, and has a full-time office in Bamako.

Through its long involvement in the region, MSU not only has a strong understanding of the critical issues involved in promoting sustainable agricultural development and food security in West Africa, but also a very broad network of West African colleagues in research, teaching, and policy positions with whom it can collaborate.

UMR-MOISA (<http://www1.montpellier.inra.fr/moisa/moisa/>) is a joint research laboratory that involves researchers from several French organizations that have many years of experience in socio-economics research in West Africa. For example, one of MSU's key partners at UMR-MOISA, Johny Egg, has carried out research on regional trade in West Africa since the late 1980s and has collaborated closely with MSU on several programs in the past. UMR-MOISA is currently conducting a study on the impact of high international food prices in several West African countries, supported by the French foundation FARM. Thus, like MSU, it will be able to leverage findings from other ongoing work to contribute to the activities of this proposed project.

8. Budget Narrative

The estimated total cost of the 3-year project, as shown in the detailed budget, is US\$1,059,109. A description of the budget lines is presented in the paragraphs below.

- A. Personnel:** Dr. John Staatz from Michigan State University will provide direction and oversight for the project along with Co-PIs Dr. Niama Nango Dembele, and Dr. Eric Crawford. They are all budgeted at a percent of effort of their Annual Year salaries. Other faculty working on the project are Dr. Duncan Boughton, Dr. Valerie Kelly, Dr. Steven Longabaugh, and Dr. Scott Loveridge, all budgeted at a percent of effort of their Annual Year salaries. There will be one half-time Graduate Research Assistant working on the project in year one (most likely Ramziath Adjao) and two half-time Graduate Research Assistants in years two and three. Additional staff budgeted are administrative support staff Rosemarie Kelly, Xiao Zhen Li, Mary Jane Robb, a TBD Administrative Assistant and a TBD Secretary all on an annual year basis. Total MSU salaries to be supported by the Syngenta Foundation are \$362,344..
- B. Fringe Benefits:** All fringe benefit amounts are calculated using the Specific Identification method per Michigan State University policy. Tuition costs for Graduate Assistants obtained from MSU's Contract and Grant website are stated in the "Other" expenses section of the budget. Total fringe benefits to be supported by the Syngenta Foundation are \$115,369.
- C. Travel:** Please see proposed travel section of the budget for detail of each trip. MSU faculty and consultants will travel from Lansing, MI and from Europe to Bamako during the three years of the project for a total estimated cost of \$90,173. Flight costs were estimated by using the internet travel sites. Dr. Nango Dembélé, MSU's Mali-based coordinator, will travel annually from Bamako to Lansing, MI for an estimated cost of \$18,133 for fifteen days each trip. Also, Dr. Dembélé or one of our Malian partners will travel annually to Montpellier, France and Basel or Geneva, Switzerland for seven days at an estimated total cost of \$14,672 and \$18,641 respectively. Two MSU faculty will travel annually to Washington, DC for three days (for outreach), estimated at \$250 per roundtrip. In-country airfare for MSU and Malian individuals to attend regional meetings in Lome for five days

and Abuja for six days has been priced at \$855 and \$1,527 each respectively. MSU faculty will travel to Montpellier, France to coordinate research with UMR-MOISA for seven days, estimated at \$1,600 per roundtrip each year of the project (one trip per year one for each of the three years). One MSU faculty will travel annually to Basel or Geneva, Switzerland for seven days estimated at \$1,200 airfare per roundtrip. The lodging and per diem rates were obtained using the US Department of State's Office of Allowances, Foreign Per Diem Rates web site. The Bamako rate is \$217/day, the Montpellier rate is \$222, the Basel rate is \$366, the Lome rate is \$255/day, and the Abuja rate is \$508/day. Domestic per diems were budgeted according to MSU policy using the standard city rate for East Lansing at \$39/day plus actual lodging and the major city rate in WDC at \$64/day plus actual lodging. Local travel was estimated based on past experience and passports, visas and vaccinations were estimated at \$500 for each traveler. A proportion of Dr. Dembélé's in-country living allowance is budgeted at \$18,540 for the life of the project according to the State Department Office of Allowances website. Total travel budget request is \$227,122.

D. Other Direct Research Costs: On-campus research costs include books, subscriptions, publications, computers, computer services, postage, photocopying, printing charges, long distance telephone charges, and translation services for final editing of publications. In-country costs were provided by Malian collaborators and include field research, outreach, and management costs. There are salaries and related payroll costs, computer costs, office operation costs, office furnishings, printing costs, other outreach costs (e.g., through radio and TV), training costs among other costs detailed out in the detailed budget. All in-country costs are subject to the exchange rate at the time of implementation and the budgeted exchange rate was obtained from www.oanda.com. Total other direct research and outreach costs are \$208,454.

E. Contractual Costs: Contractual costs include consultants for \$60,000 (\$52,500 in year 1 and \$7,500 in year 2), focused on the import parity model, consumption studies, and regional trade studies..

F. Subordinate Agreement: None

G. Indirect Costs: The Foundation has an established 10% indirect cost rate to be applied to the Total Direct Costs. Indirect Costs are \$96,283.

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**Appendix 2: Agricultural Globalization in Reverse: Background Paper prepared for the
2008 Geneva Trade and Development Forum**

**Agricultural Globalization in Reverse:
The Impact of the Food Crisis in West Africa**

by

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**Background paper for the Geneva Trade and Development Forum
Crans-Montana, Switzerland
September 17-20, 2008**

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Agricultural Globalization in Reverse: The Impact of the Food Crisis in West Africa

Background and objectives

Trade bans and high international food prices are pushing many West African countries away from their historical reliance on regional and international trade as a key component of their food security strategies. No longer confident that international and regional markets are reliable sources of basic staples, many countries are pushing for greater food self sufficiency—a sort of agricultural globalization in reverse. This paper examines West Africa's globalization in reverse and raises a number of questions about what role regional and international trade should play in the region's future quest for food security. The objective is to stimulate discussion about the different strategies available to West African governments for ensuring food security in the current environment of high world market prices for staple foods. These strategies need to take into account not only the need to provide safety nets for vulnerable groups who cannot afford the higher food costs but also the need to stimulate production in response to growing regional and world demand.

Evolution of food security policies in West Africa

West Africa has historically relied on international and regional trade to help assure its food security. Although some governments in the sub-region promoted national food self-sufficiency in the 1980s, by the early 1990s, most West African countries had adopted a broader notion of food security that built upon historical regional and international trade patterns based on comparative advantage. Countries in the sub-region fall into four categories regarding the role of trade in their food-security strategies:

- Countries such as Mauritania, Senegal and Sierra Leone that have historically based their food strategies on large imports of Asian rice combined with imports of coarse grains (millet, maize and sorghum) from neighboring countries, while exporting cash crops and mineral resources;
- Those that were food exporters in the 1960s (most notably Nigeria), but have become major importers of rice, wheat, and some coarse grains, as their economies and population have grown faster than domestic agricultural output;
- Those that have historically been largely self-sufficient or exporters of staples in normal years (e.g., Mali, Burkina Faso, and Chad) and
- Those (e.g. Côte d'Ivoire, Ghana and Guinea) that import significant quantities of rice from overseas and millet from northern neighbors, but that seasonally export significant quantities of maize (and in Guinea's case, fonio) to their northern neighbors.¹

In reality, most countries, even significant exporters and importers, are involved in some two-way regional trade in staples. For example, Nigeria exports significant quantities of coarse grains to Niger in exchange for cowpeas, while Mali and Burkina Faso import some rice from Asia while exporting coarse grains to their neighbors.

¹ Just because a country exports staples to its neighbors does not imply that it is food secure in the sense of guaranteeing everyone in the country access to a reliable source of food. Indeed, as discussed below, it is the desire to protect the poor's access to food that has led some governments in the region to restrict exports.

Since the mid-1970s, the countries of West Africa have been linked through a number of trade and monetary organizations, the most important being:

- The Economic Community of West African States (ECOWAS), formed in 1975 and comprising 15 countries,² with a mission to promote economic integration in all fields of economic activity, particularly industry, transport, telecommunications, energy, agriculture, natural resources, commerce, monetary and financial questions, and social and cultural matters. The ECOWAS treaty authorizes free movement of goods and people among the member states.
- The West African Economic and Monetary Union (UEMOA), which includes 8 countries (Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal and Togo) that share a common currency, the CFA franc. UEMOA, formed in 1994 by enlarging the scope of activities of the previous West African Monetary Union (UMOA), has as its mission to strengthen the competitiveness of economic and financial activities of member states within the framework of open and competitive markets and to create a common market based on the free circulation of people, goods, services, and capital, as well as on common exterior tariffs and commercial policies.

In addition, two regional organizations play a particularly important role in the coordination of agricultural policies and trade in West Africa. The Council of Ministers of Agriculture of West and Central Africa (CMA/WCA), created in 1991 and including 20 countries,³ has as its objectives the promotion of regional agricultural trade, the improvement of West and Central Africa's competitiveness in international agricultural markets, and the promotion of sustainable agricultural development through the harmonization of agricultural policies in the region. The Permanent Interstate Committee to Combat Drought in the Sahel (CILSS), which includes 9 countries⁴, was created in 1973 as a regional effort to promote food security and combat drought and desertification through promoting regional scientific cooperation, policy coordination, and capacity building. Since the 1970s, CILSS has provided both empirical research and forums for policy discussion to promote regional agricultural trade throughout West Africa and has recently been mandated by ECOWAS to help lead the effort for the entire ECOWAS community.

Thus, over 35 years, West Africa has built up an institutional framework that promotes regional agricultural trade and cooperation as central components of national food security strategies. This long history of institutional cooperation makes the current shift away from trade in response to the current food crisis —“agricultural globalization in reverse”— all the more striking.

² Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo.

³ Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Nigeria, Senegal, and Togo in West Africa and Cameroon, the Central African Republic, Chad, Congo, Equatorial Guinea, and Gabon in Central Africa.

⁴ Burkina Faso, Cape Verde, Chad, Gambia, Guinea-Bissau, Mali, Mauritania, Niger, and Senegal

The current food crisis has shifted the West African trade-based food-security strategy into reverse for several reasons. Soaring prices (e.g., rice selling for over US\$1000/ton) and export bans from some Asian countries such as India not only threatened the availability of rice imports, but led many West African governments to conclude that the risks were very high in depending on the international market for staples. At the same time, some West African exporters of coarse grains (millet, sorghum, and maize)—most notably Burkina Faso, Mali, Niger and Nigeria—restricted exports in an attempt to protect domestic consumers from the soaring prices. This in turn has driven up costs in neighboring countries, while depressing prices paid to their own farmers, and having only mixed effects on reducing consumer prices (for details, see Kelly et al. 2008; and Diarra and Dembélé, 2008).

The recent staple food price situation in West Africa

Cereal supply in West Africa for 2007/08 was about 5% below the excellent 2006/07 harvest.⁵ Sahelian countries did better than coastal ones, with aggregate 2007/08 production in the Sahelian countries 1% below the previous year but 17% above average levels for 2002-2006. Nevertheless, there were important pockets of poor production in a number of Sahelian countries (e.g., in Senegal, Mauritania, Burkina Faso, and Niger). Among coastal countries, four experienced production declines from the previous year (Ghana, Benin, Côte d'Ivoire and Nigeria) ranging from 7% in Nigeria—by far the largest grain producer in West Africa—to 13% in Ghana, while production in Togo and Sierra Leone increased by 3% and 21%, respectively. Various reconnaissance missions and market information reports confirm that initial responses to these various production shortfalls by the private sector were positive, with new trade routes being developed and the relative importance of existing routes changing in response to the emerging demand.⁶ Most analysts agree that this relatively small decline in aggregate regional production and the demonstrated ability of the private sector to respond would not, under historical circumstances, have resulted in the cereal price hikes that have been experienced during 2007 and 2008. Thus, it was the combination of slightly lower production in West Africa, higher regional demand, and much higher world prices that resulted in the current high-price situation in West Africa.⁷

Demand for cereals is growing in the region not only as a result of population growth and urbanization but also because as incomes rise, consumers demand more products that require cereals as intermediate inputs (e.g., dairy products, meat, poultry, and alcoholic beverages). Nigeria, for example, had a significant increase in demand for

⁵ All production data come from presentations made by CILSS at the CILSS Market and Trade Opportunity Conference, Cotonou, April 2008. More details are available in Kelly et al. 2008.

⁶ See, for example, the discussion in SIMA (2008) and Diarra and Dembélé (2008) about the emergence since 1999 of the new “Kantchari (Burkina Faso) trade corridor” linking producers in Mali and Burkina Faso with growing markets in Niger, northern Nigeria and northern Benin.

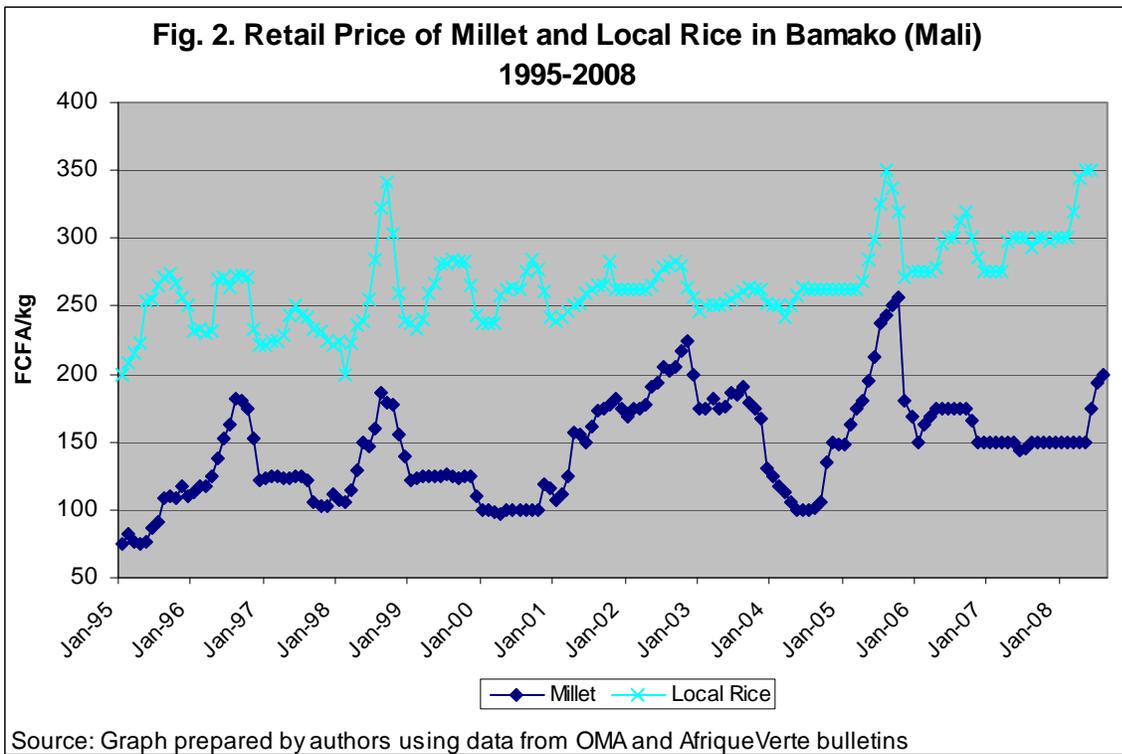
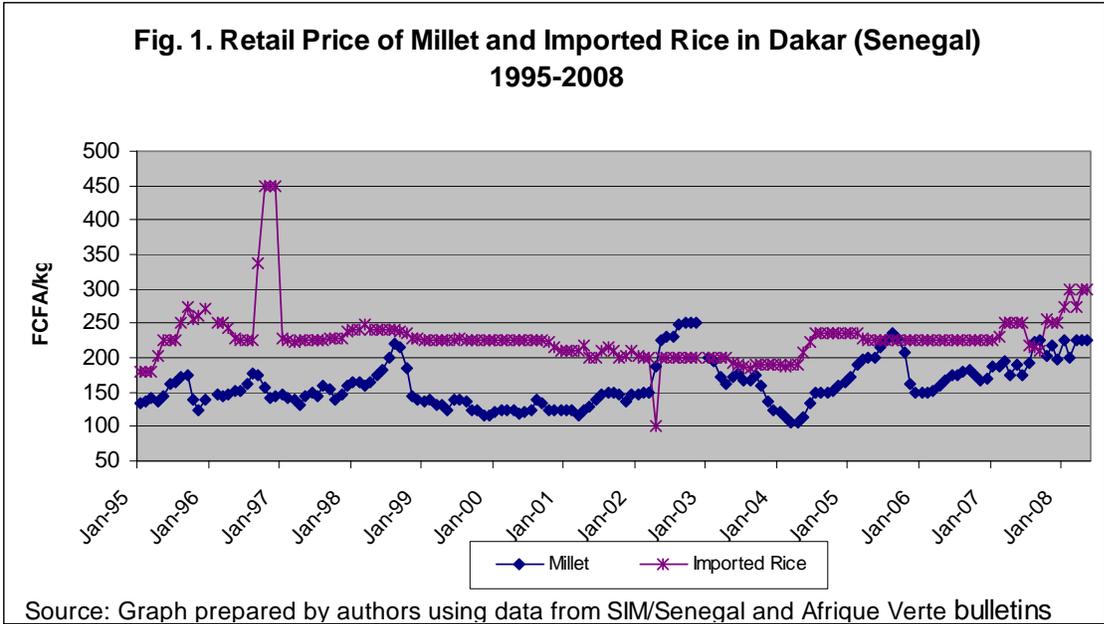
⁷ For a discussion of the many factors contributing to the high world prices, see the websites on this topic developed by the World Bank (<http://www.worldbank.org/html/extdr/foodprices/>), the IMF (<https://www.imf.org/external/pubs/ft/survey/so/2008/NEW042808A.htm#top>), the International Food Policy Research Institute (<http://www.ifpri.org/themes/foodprices/foodprices.asp>) and Michigan State University (<http://www.aec.msu.edu/fs2/responses/index.htm>).

maize in 2007/08 as its poultry industry recovered from a downturn associated with avian flu. There is evidence that demand for poultry and livestock feed is also growing in Mali, although at a slower rate than in Nigeria. It is not clear that government estimates of cereal needs using traditional “cereals balance” methods are fully accounting for the growth in such intermediate demand.

Generalized inflation is an additional factor contributing to political unrest surrounding rising food prices and concerns about food security. For UEMOA countries, overall prices were 7% higher in May 2008 than a year earlier. This is in contrast to historical patterns of moderate inflation (less than 4%/year) since the late 1990s. Outside the CFA franc zone, inflation in Nigeria and Ghana was higher (5% and 11%, respectively) in 2007, but lower than 1999-2006 rates, which went as high as 19% (Nigeria) and 33% (Ghana) during peak years. The range of products whose price increases have raised consumer concerns is very broad. For example, higher energy prices translate into higher transport costs for food and costs of getting to and from work, school, and markets; transport price hikes can also cut into profit margins, reducing the net incomes of artisans, traders, and transporters. Lodging costs and prices of basic household goods are also rising, leaving less money for food.

Food price inflation, of course, is an important component of generalized inflation; for UEMOA countries, food prices increased 14.2% from May 2007 to May 2008. Products such as milk, meat, fish, and cooking oil are frequently cited as major culprits. The degree to which staple food prices are rising varies by country, by product, and by source (regional or world markets). Yet it is important to note that for most countries, cereal prices, even in nominal terms are not at historical highs (particularly for coarse grains). Prices for coarse grains were higher during the crisis year of 2004/05, when droughts and locust attacks created a supply shortfall, although rice prices are now at or above the 2004/05 levels. Figures 1 and 2 illustrate the long-term price patterns for Dakar and Bamako. As recently as July 2008, FEWSNET reported that millet and sorghum prices in northern Nigeria were still slightly below their 2004/05 levels, although they were substantially above prices following the good 2006/07 harvest.⁸ Thus, it is not high food prices alone, but rather the combination of higher food prices in conjunction with broader generalized inflation, that is leading to consumer unrest.

⁸ For more details on coarse grain prices see Kelly et al., 2008 and (http://www.fews.net/docs/Publications/nigeria_2008_07_final.pdf)

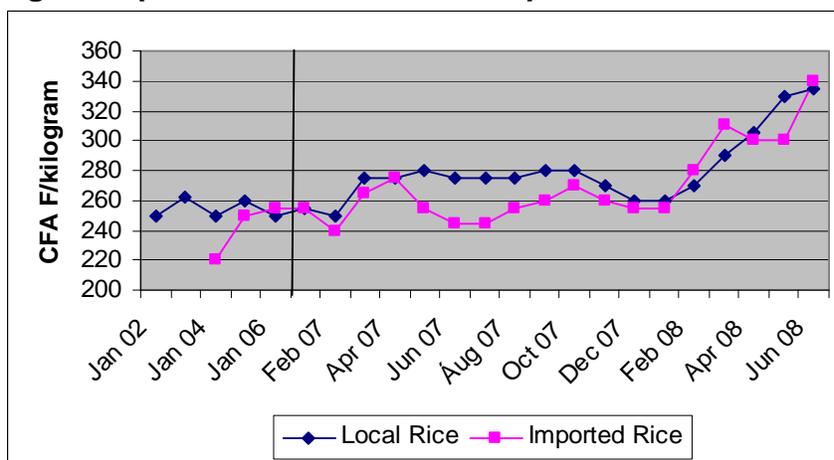


Figures 1 and 2 also illustrate that while rice prices have climbed significantly, locally produced coarse grain prices have not, until very recently, shown a similar price increases. In West Africa, it is important to distinguish between staples such as rice and wheat, which are internationally traded, and those that are not as widely traded internationally but are important in regional markets (often referred to as “semi-

tradables”).⁹ The latter include millet, sorghum, fonio, cassava and yams. Maize is an intermediate case. Historically, relatively little maize has been traded in or out of West Africa, although this situation is beginning to change, particularly with the increasing demand for feedgrains for the growing poultry industry. Over the past 40 years, West African consumers, particularly in urban areas, have shifted their consumption increasingly towards rice and wheat products, in part because they are easier to prepare and consume in time-constrained urban settings. The current high international prices of rice and wheat have been quickly transmitted to West African consumers as illustrated by Figure 3, which shows how prices of domestically produced rice closely track those of imported rice in Mali. A key empirical question is the degree to which the higher prices of wheat and rice will spill over onto the semi-tradables, driving up their prices as consumers shift consumption to these cheaper locally produced staples. Beginning in April-June, coarse grain prices in Mali, Senegal, Burkina Faso, and Niger, which had been relatively stable earlier in the year, began to rise, suggesting that consumers had begun to overcome their historical reluctance to substitute coarse grains for the easier-to-prepare rice and wheat products (Figures 1 and 2).¹⁰

Imported rice, and to a lesser extent wheat used in bread, are the biggest problems for import-dependent countries such as Senegal; but imported rice prices are also rising in countries such as Burkina Faso and Mali, which are less reliant on imports. Maize is a problem for countries with production shortfalls (e.g., Nigeria and Ghana) and their neighbors (Niger, Burkina Faso, and Mali), whose markets are being used to help fill the shortfalls (Figure 4).

Fig. 3: Imported and domestic rice price trends: Mali

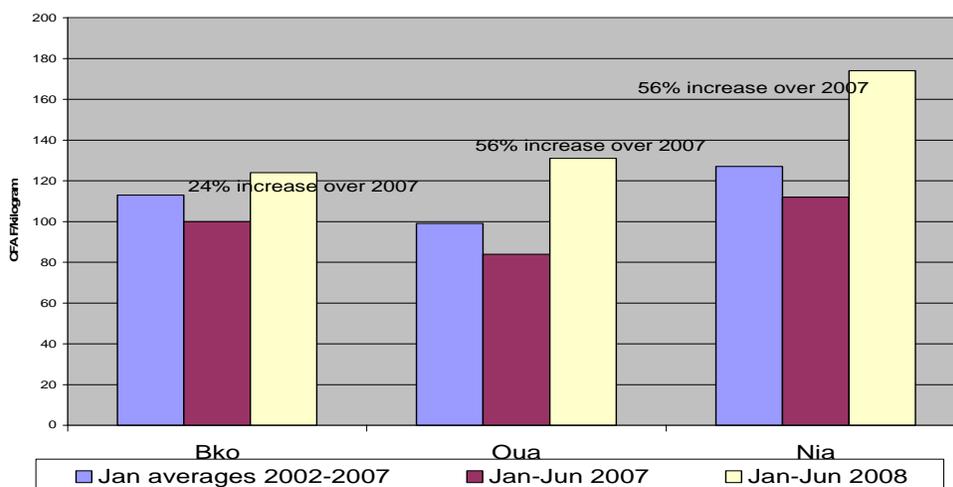


Source: Graph prepared by authors using data from Afrique Verte bulletins. The vertical line indicates that monthly, as opposed to annual data, are graphed starting in January 2007.

⁹ See Delgado et al. (1994) for more a discussion of the importance of these “semi-tradables” in agricultural development in West Africa.

¹⁰ See Camara 2004 and Reardon et al., for past evidence on substitution of cereals by West African consumers.

Fig. 4: Maize Price Trends in Bamako, Ouagadougou, and Niamey



Source: Graph compiled by authors from data in Afrique Verte Bulletins.

Short-run policy responses and emerging picture of impacts

Table 1, adapted from a recent paper by the World Bank (April 2008), presents a set of policy options for dealing with rising food prices. Four options fall into the category of safety-net programs, and six can reduce food prices in general. The table evaluates each policy option in terms of how well it targets vulnerable groups and preserves incentives for beneficiaries to work or produce more staples as well as in terms of costs and ease of implementation and management. As the focus of this paper is the relationship between trade policies and rising prices, the policy tools of most interest are those in the “price reducing” column, such as tariff adjustments and export bans, although subsidies and stock releases implemented at the national level will also influence both domestic and regional trade decisions made by private-sector actors. The World Bank judged that reducing tariffs and taxes can be more effective (four of five effectiveness criteria are applicable) than export restrictions (only one applicable effectiveness criterion), with subsidies and stock releases falling in the middle (2-3 relevant criteria).

Table 1. Effectiveness of Policies for Mitigating High Food Prices	
Price Reducing Tools*	Safety-net Tools*
<ul style="list-style-type: none"> • Reducing Tariffs/VAT (2, 3, 4, 5) • Subsidies/rations <ul style="list-style-type: none"> – Generalized (3, 4) – Targeted (1, 2, 3) • Release stocks (2, 4) • Export restrictions (4) • Producer price controls (0) 	<ul style="list-style-type: none"> • Targeted cash transfers (1, 2, 3, 5) • Food for work (1, 2, 3) • Food aid (1, 3, 4) • Feeding/nutrition program (2, 3)
<p>* Numbers following each tool refer to the following “effectiveness criteria”:</p> <ol style="list-style-type: none"> 1. Targets vulnerable 2. Preserves incentives 3. Costs contained 4. Easy to implement 5. Limited management and governance concerns 	

Policy instruments used by West African countries to deal with the high food prices fall primarily in the category of those that are “easy to implement,” although perhaps difficult to enforce (a criterion not listed in the table). Those relating to regional trade include tariff relief policies implemented by Niger, Burkina Faso, Mali, Senegal, Cameroon, and Nigeria and export restrictions imposed by Mali, Burkina Faso, and Niger—all countries whose production this year has matched historical norms.

Tariff relief. A disadvantage of reducing tariffs on imported staples is that unless the reduction is implemented well in advance of a crisis situation, it is unlikely to have the desired impact because traders are usually unwilling to reduce prices of currently held stocks for which the taxes have already been paid. Response also tends to be slow when import markets are dominated by a few large players who face few competitive pressures to pass on cost savings to consumers—a situation that is common in the region. Furthermore, when implemented in the context of rapidly rising prices, even if wholesalers do pass on the cost savings, consumers may not perceive lower prices because the importers’ purchase price may have risen by more than the tax reduction. Or if the importers agree to a fixed selling price in exchange for a tax holiday, they may not be able to honor the agreement if the world prices (and hence the prices they pay) rise rapidly after the agreement with the government is signed. A recent news item (IRIN 29 April) reported that prices of rice, flour, and fish were still at their previous levels or higher almost two months after the government of Cameroon lifted import taxes. The government received agreement from wholesalers that they would pass on the 5 percent reduction in price to buyers, but the impact had not yet filtered down through retailers. A second drawback of the tax holiday on imports is that it reduces government revenues that could be used to support measures

to expand domestic production.¹¹ For example, Cameroon is currently considering reinstating its import tax on staples and using the revenues to subsidize local production. In Mali, where the government has just announced a major new rice production program, funding is constrained by limited resources because of the reduced cereal and fuel import tax revenues.

Export restrictions. While there is some evidence that immediately following the introduction of export restrictions, regional trade was reduced, recent reconnaissance missions in Mali and Niger (Diarra and Dembélé 2008; SIMA 2008) suggest that trade picked up again and that the main impact of the export bans has been increased transactions costs associated with moving supplies from surplus to deficit zones—costs that are ultimately borne by the consumers in the importing countries and by farmers in the exporting countries, reducing the latter’s incentives to invest in agriculture and expand production.

In essence, export bans in West Africa act like very badly designed and poorly implemented export taxes. Like export taxes, they depress producer incentives in low-cost, more efficient producing countries (e.g., Mali and Burkina Faso) and raise producer prices in higher-cost importing countries. They therefore encourage staple food production in areas where such production is more costly while discouraging it in areas that currently have a comparative advantage. This shift in incentives leads to resource misallocation within the region, raising the costs of achieving regional food security. Unlike a fixed export tax, however, the level of illicit payments needed to evade an export ban can vary widely, increasing the risk that traders face and reducing their ability to plan. Furthermore, the revenues generated by these illicit taxes flow into the pockets of private individuals who control access to the border crossings (customs and police officers, etc.), rather than into government coffers, where they could be used to invest in increasing agricultural productivity.

The reconnaissance missions confirmed that cereal flows from Mali to Mauritania continued briefly after Mali’s export ban was announced (local authorities permitted traders to export existing stocks) but then stopped due both to stricter enforcement and the implementation of import subsidies in Mauritania that made imported wheat products and rice less expensive than Malian coarse grains. The Niono/Nara to Mauritania trading axis had an overall decline in millet exports of 38% from 2007 to 2008. A similar decline in millet exports was observed between Sikasso (Mali) and Côte d’Ivoire (27%). The situation was reversed, however, for millet moving from Sikasso to Niger (174% increase) and for maize along several other market axes, in spite of the export ban. The volume of maize shipped from the Sikasso region to Senegal increased from 1880 tons (January to July 2007)

¹¹ Loans available to government through the IMF’s “Exogenous Shock Facility” may help them to continue to make these key investments in spite of the budgetary shortfalls brought about by the tax reductions.

to 6047 tons during the same period in 2008.¹² Along the Kantchari-Niamey axis between Burkina Faso¹³ and Niger, maize exports grew from 8384 tons in 2007 (January – July) to 10,870 tons in 2008, in spite of Burkina’s and Mali’s export bans. Much of this increased trade seems to have been destined ultimately for northern Nigeria and Northern Benin, which in normal years export coarse grains to Niger. This year, because of poor harvests, they are importing, drawing grain from as far away as Mali.

For maize, the Malian trade restrictions, officially introduced in February 2008, were followed by rising, rather than falling, wholesale and retail prices in Koutiala, the heart of Mali’s maize production zone, in response to the increased export demand (Table 2).

Table 2. Evolution of wholesale and retail prices of maize in Koutiala, Mali: 2007 and 2008						
Month	2006/07		2007/08		% Variation 2007 to 2008	
	Wholesale	Retail	Wholesale	Retail	Wholesale	Retail
January	70	75	98	103	40	37
February	75	80	97	105	29	31
March	75	80	101	106	35	33
April	75	80	106	112	41	40
May	76	81	118	124	55	55
June	78	83	137	143	76	72

Source: Diarra and Dembélé 2008.

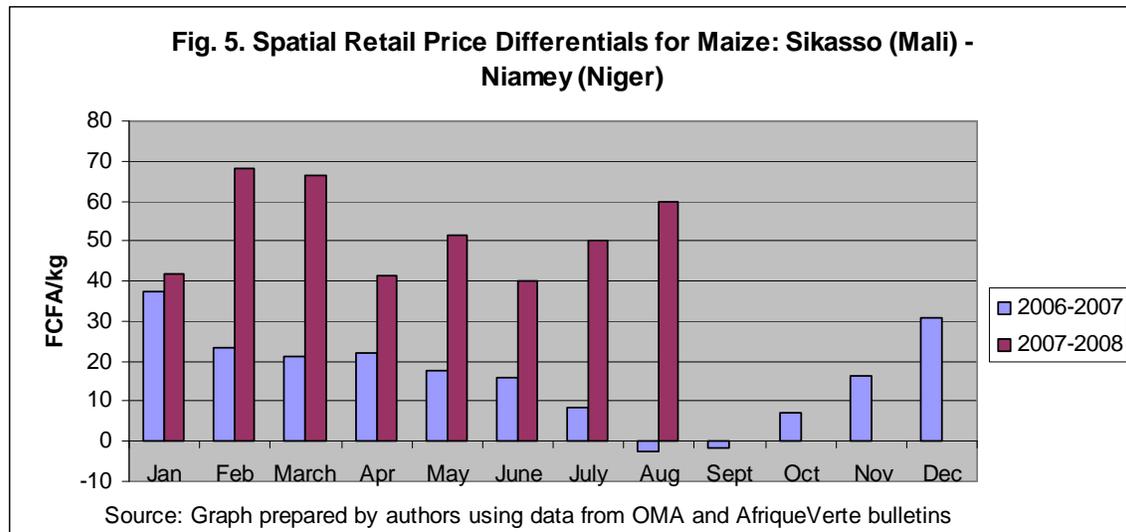
Interviews with traders also revealed a significant increase in transaction costs for exports from Mali to Senegal and Niger (estimates ranging from 250,000 to 440,000 CFA francs per truck load of 60 to 80 tons of cereal—an eight-fold increase in illicit payments relative to the period prior to the export bans). An analysis of the differences between wholesale maize prices in Koutiala and destination markets in Senegal and Niger in late August, 2008, however, revealed a large increase in the price differential between these markets, suggesting that the trade restrictions, while not stopping trade, had reduced the degree of market integration in the region (see figure 5).¹⁴ Dakar prices were 95 CFA francs higher per kilogram and Niamey prices 86 CFA francs higher than in Koutiala. Estimated transport and transaction costs (excluding those associated

¹² Improvements in the road infrastructure between Mali and Senegal in 2007/08 undoubtedly accounted for some of the increase, but it is striking to see such a rise in exports at a time when the Malian government was trying to restrict them.

¹³ The Burkina market is fed by supplies from Mali, Côte d’Ivoire, Ghana and Togo, depending on production patterns in a given year.

¹⁴ The price differentials shown in figure 5 are smaller than the differentials mentioned in the text. The figures cited in the text refer to a slightly later period (late August 2008) and to differences in wholesale rather than retail prices. Nonetheless, the story from figure 5 is clear: spatial price differentials have widened sharply since the imposition of the trade restrictions.

with circumventing the export restrictions) range from 26 to 28 CFA francs/kg, leaving about 60 CFA francs/kg in Niger and 67 in Senegal to cover importer and retailer margins plus “circumvention” costs. So long as the price differences between markets are high, trade restrictions are unlikely to stop cereal flows from surplus to deficit markets. In this example, it is Malian producers and Senegalese and Nigerien consumers who are being penalized by the trade bans while those collecting the illicit taxes are benefiting. The result is lower incentives in the system for stimulating production to reduce ongoing food insecurity.



Four emerging strategies

Four major strategies have emerged or have been advocated as means of dealing with the food crisis in the short run while stimulating agricultural growth in the long run. Below, we briefly discuss the main advantages and disadvantages of each approach.

1. An emphasis on national self-sufficiency

During the mid to late 1980s, most West African countries, especially the francophone countries, shifted from a policy advocating national food self-sufficiency to one of food security, based on a combination of national production and trade, particularly regional trade that takes account of the complementarity of resources within the subregion. This move away from an autarkic approach to food security was initially strongly pushed by external donors as part of structural adjustment packages, but later was adopted as a central element of the strategies advocated by regional organizations such as ECOWAS, UEMOA, CMA/WCA and CILSS.

The current crisis, with its trade bans both in West Africa and from Asian rice exporters, has raised the risks of such a trade-based approach and led some countries to aim for greater national self-sufficiency in basic staples. The most striking example is Senegal’s “Grand Agricultural Offensive for Food and

Abundance” (GOANA—*Grande offensive agricole pour la nourriture et l'abondance*), that seeks to move Senegal from 20% rice self-sufficiency to 100% by 2015.

A key advantage of a national self-sufficiency strategy, if it succeeds, is that it makes the country less dependent on the vagaries of other countries' export policies for politically important basic staples. Such a strategy also focuses attention on the agricultural sector and may reverse the historical underinvestment in agricultural production in most African countries. In addition, if agriculture is the main provider of employment and source of income for the majority of people, then such policies can promote overall development if they spur increased productive investment in agriculture that allows the country to achieve lower unit costs of production. This is more likely to be achieved if the country focuses on long-term investment in the key drivers of agricultural development rather than just short-term production subsidies.

The costs of such a strategy depend critically upon:

- The degree to which domestic production can be increased through increased *productivity* (driving down the unit cost of production) vs. expanding production through the increasingly costly application of more inputs using the same low-productivity technologies. For example, if production is expanded through the use of subsidized inputs, will those subsidies lead to adoption of new technologies (e.g., more fertilizer-responsive varieties) that eventually drive down unit costs of production? Or will the subsidies have to continue (and be financed) indefinitely as farmers apply the subsidized inputs in their current production systems?
- How stable domestic production will be relative to world market supplies. A traditional justification for trade is that it acts to stabilize domestic supplies, as global or regional production is likely to be more stable than the production in a single country.

The traditional arguments against an autarkic staple food policy are twofold. First, if the country's unit cost of production is significantly higher than the price at which staples can be imported, then either consumers (through higher prices) or taxpayers (through taxes that pay for production subsidies) will bear the higher-cost local production. Those resources, the argument goes, could yield higher returns to the country if they were invested in other sectors of the economy and the revenues thus generated were used to import food. If the production is expanded by subsidies (e.g., for fertilizer), the critical issue is the opportunity cost of the resources going into the subsidy. They likely could have created greater wealth for the economy in other uses; otherwise, they would have flowed into staple food production without government action. Second, as mentioned above, trade can be used as a stabilizer of domestic markets because global production is generally more stable than production in an individual country. But to use trade in this way, there must be some trade infrastructure in place and links with reliable trading partners, neither of which are likely to emerge if a country

pursues an autarkic food policy. Furthermore, if the country has a surplus, without ongoing trade relations with its neighbors, it may find it harder to find customers for its surplus, leading to more volatile domestic prices.

Yet the recent export bans by countries such as India, Vietnam, Mali, and Burkina Faso bring both of these arguments against autarky into question. Even though the import bans have not really completely cut any country off from foreign supplies, the importing countries have reason to question whether a trade-based food security policy is too risky. If export bans result in staples not being available at any price, then the advantages of a trade-based policy disappear.

2. Regional trade zone with protection against outside imports

ECOWAS is premised on the notion of the free movement of goods and people within member states, while offering some degree of protection from outside imports. In this sense, it has followed, in principle, the model of most free-trade areas, with the well-known effects of trade creation (expanding trade within the community) and trade diversion (reducing trade from lower-cost exporters that are not part of the community). As noted above, in practice the ECOWAS zone suffers from numerous internal trade barriers, ranging from officially imposed trade bans to bribes extracted along major trade routes. While both ECOWAS and UEMOA practice some degree of taxation of agricultural exports from outside the zone, the levels have historically been modest. For example, the ECOWAS's *prelevement communautaire* (ad valorem tax) on rice imports from outside the zone stood at 0.5% in 2007, while the equivalent UEMOA tax stood at 1%.

More recently, there have been calls for greater regional protection within the community to stimulate West African staple food production. These calls have often framed in terms of promoting “food sovereignty” (Berthelot, 2006; Blein, 2006) and are reminiscent of the calls in the 1980s for a “regional protected zone” for staples in West Africa. The basic argument is that some period of protection from outside competition is needed to spur investment in West African agriculture, presumably leading to cost-reducing technical change that will ultimately drive down food prices. The “regional protected zone” proposal was widely debated in regional forums in the 1980s, led by CILSS and the Club du Sahel, and was ultimately abandoned for three reasons: (a) concern about how higher staple food prices, at least in the short-run, would affect the large number of low-income consumers in the region; (b) lack of convincing evidence that higher prices in short run would lead to rapid adoption of cost-reducing technical change in agriculture given all the other constraints facing the agricultural sector (weak infrastructure, macro-economic constraints such as highly overvalued exchange rates, and weak agricultural research and extension systems), and (c) a lack of common interests from potential food exporting countries, such as Mali and Burkina Faso (which had interest in high food prices), and major food importers, such as Senegal (which had interest in low food prices).

Many of these same constraints still exist. Furthermore, the democratization and increased urbanization that have occurred in most West African countries over the past 20 years have given poor urban consumers even greater voice in policy debates, making a heavily protected regional production zone less likely. However, with high transportation costs and rising world food prices, the region may become competitive vis-à-vis imports from the world market even without a high protective tariff. Thus, the scope may be much greater now for creating a regional agricultural market that links production basins (some of which may span more than one country) to the region's growing consumption centers. Examining the potential for such a market and the investments and policies needed to bring it about is an area that merits further research.

3.. A WTO-style approach, based on open trade

This approach, while often advocated as an ideal that allows countries to achieve food security at least cost by exploiting comparative advantage, has never been fully embraced by West African policy makers. Now with the collapse of the Doha round, a purely liberal approach to food security seems less likely than ever. The main complaint against this approach is well-known: a belief that the OECD countries stacked the rules of trade in their favor, with the result that the high-income countries flooded West Africa with cheap agricultural goods (subsidized rice, powdered milk, etc.) and subsidized OECD producers (e.g., of cotton) that competed with African producers in third countries. While the current high world prices of agricultural commodities have reduced agricultural subsidies for the time being, policy makers remain wary of a completely open policy, especially in light of the recent restrictions on grain exports from major grain exporters such as India and Vietnam.

Nonetheless, if physical availability of basic staples on international markets and reductions in OECD agricultural subsidies could be guaranteed, the advantages of a trade-based food security strategy remain attractive. By focusing its resources in activities where they are most productive, a country and a region can obtain their basic food needs at lowest cost, rather than forcing poor consumers to pay high prices to support inefficient local production. Yet given all the constraints of moving to an equitable and reliable open international trading system, the immediate challenge is to discover paths that allow the West African countries to develop reliable food security strategies that don't require a strong shift back towards autarky. As the example of North Korea shows, autarky is a very costly and seldom effective way to achieve food security.

4.. Bilateral trade agreements within the context of regional economic communities

Export bans, both by countries within ECOWAS and from Asian exporters, have undermined confidence in regional and international trade agreements. Within ECOWAS, it is apparent that the need for national political leaders to protect consumers (many of them poor) trumps regional obligations to "free movement of

goods and people”, particularly in a low-income country such as Mali that fears that its neighbors can outbid it for its staple food supplies. Thus, in the context of the trade bans, countries are increasingly looking to bilateral agreements to assure access to at least some food from the exporting countries. These bilateral agreements often involve a quid pro quo on the part of the importer. For example, Mali is offering its neighbors the opportunity to invest in its major irrigated rice area, the Office du Niger, which would presumably permit the investor countries (such as Senegal) the right to export the resulting production. The political advantage of such bilateral agreements is that they provide some “political recompense” to the exporting country in terms of being able to argue to its own consumers that food is not being exported without a compensating increase in national production.

In addition, some West African countries are exploring bilateral trade agreements with food exporters from outside of West Africa. For example, Senegal recently signed a 5-year agreement with India guaranteeing access to Indian rice exports. It is not apparent how such agreements will interact with regional agreements, such as the common agricultural policies of UEMOA and ECOWAS, which call for common external tariffs for imports from outside the communities. Will the rice imported from India be subject to these tariffs? Once in Senegal, in principle, there would be no restrictions to its re-exportation to any country within the community. Thus, has India really just signed an agreement with all of ECOWAS rather than with just Senegal?

Which path(s) forward, and why?

In the current high-price, post-Doha environment, what are the food-security options for West Africa? One approach that may hold promise is that of a regional trade zone, with modest protection against import surges due to major exchange-rate fluctuations or export subsidies. Such an approach would have the following advantages:

- Wider regional markets will eliminate the small size of national markets (“thin markets”) that make them so volatile. Regional integration will provide more price stability to both producers and consumers, and thus increase incentives for private investment in agriculture. It will also allow scale economies in marketing and processing.
- A regional trade zone will permit the exploitation of ecological complementarities and comparative advantages among countries--e.g., between the Sahel and coastal countries (Badiane and Resnick 2005)
- The region provides the opportunity to pull research resources together and achieve scale economies in technology generation around different production basins, which often span national borders.

- The region can also allow the creation or strengthening of existing regional agricultural training centers.

In principle, the regional approach described above sounds very much like the vision embraced by ECOWAS under NEPAD's Comprehensive African Agricultural Development Program (CAADP). But the history of regional trade agreements in West Africa has shown that moving from vision to reality is not easy. In particular, overcoming the political pressures that restrict trade (both through trade bans and the persistence of non-tariff barriers) will require addressing the following questions:

- Can trade policy alone protect the poor's access to food without undermining incentives and resources to invest in agricultural productivity growth? If so, how?
- What mix of national and regional trade, investment, and subsidy policies are politically feasible, financially sustainable, and most likely to lead to more food security in the West African context of porous borders and diverse national production, resource, consumption, and income patterns?
- What policy changes are needed to transform the current high price environment into an opportunity to attract private investment including foreign direct investment (FDI) into agriculture? Should West Africa adopt national or regional approaches to attract FDI into agricultural production (e.g., regional production basins)?
- Is it possible to move to more predictable, rule-based food policy decision making at the national and regional levels? If so, how? Does West African experience (particularly with UEMOA) in making central bank actions politically independent, transparent, and rule-based provide a relevant model for food security decision making?
- What are the appropriate domestic, regional, and international policy responses to the risks and uncertainty created in the global food markets by export bans?

What we don't know: implications for further research

Responding to the above questions will depend not only on good political judgment but also on answers to key empirical questions that will help determine what is feasible and what would be the tradeoffs involved in different policy options. The following empirical issues need to be addressed both at the regional level and in terms of variations by country and production basin:

- What is the degree of substitution between imported and regionally produced food products (wheat and rice versus local "semi-tradables" like millet, sorghum and cassava)?

- To what degree have the higher prices been transmitted back to farmers as opposed to being captured by other actors in the value chains? Can we do better?
- If world prices stay higher for the coming 10 years as projected by FAO, how is comparative advantage in producing different commodities going to be distributed among countries in West Africa? How competitive will be the regionally produced commodities vis-à-vis imported food items?
- What are the major producing basins for staple crops in the region and what are the likely supply responses in those basins given the enduring high price environment? What are likely to be the major constraints to supply response?
- Which among the technologies now available on the shelf are most likely to increase regional food supplies quickly?
- What are the food assistance programs to the poor that are most compatible with improved production incentives?

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