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Regional Economic Integration in West Africa:
Potential for Agricultural Trade as an Engine of Growth in the Western Subregion

B. Lynn Salinger
J. Dirck Stryker

CAER Discussion Paper No. 21, April 1994

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REGIONAL ECONOMIC INTEGRATION IN WEST AFRICA:

Potential for Agricultural Trade as an Engine of Growth in the Western Subregion

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EXECUTIVE SUMMARY

Increased regional economic integration is a theme dominating policy discussions from the European Economic Community to the Commonwealth of Independent States to the Pacific Rim to the North American Free Trade Area. It is reasonable, therefore, that much attention has been focused in recent years on regional trade in West Africa as a motivating force to promote economic growth.

In West Africa, a region that today encompasses nearly 200 million people, regional trade has been a focus of both the Economic Community of West African States (ECOWAS) and the Communauté Economique de l'Afrique de l'Ouest (CEAO). Yet the creation of these regional trade organizations has not led to a marked increase in intra-community economic activity.

After a period of low rainfall and thus poor cereals harvests, discussion at the 1986 Mindelo conference sponsored by the CILSS and the Club du Sahel focused on strategies to overcome what was then perceived to be a regional cereals deficit problem. The primary economic strategy identified at that time for overcoming the deficit was the promotion of a regional cereals market. This market would allow liberal cereals trade within West Africa concurrent with tariff protection vis-à-vis the external market. This recommendation led to the launching of a series of studies on informal cereals trade in West Africa in order to better identify the appropriate geographic and economic parameters.

Since those early studies, additional research has been carried out which has broadened the scope of the original work. The findings of these activities are summarized in this document. Several broad conclusions of the work are acknowledgement of both the importance of the coastal West African countries to the Sahelian agricultural economy and the linkage between cereal, non-cereal agricultural, and livestock commodities. In addition, consideration of agricultural sector comparative advantage and exchange rate disequilibria are now regularly included in the regional trade discussions.

Cereals Sector Trends

IRAM's synthesis report on the cereals economy of the western subregion (Cape Verde, Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, and Senegal) highlights a rising dependence on the international market for cereals supply, especially rice. This is the result of diverging production and consumption trends. In twenty years, the composition of demand has shifted in favor of rice to the detriment of coarse grains. While growth in production of both rice and coarse grains is at least matching growth in population, imports of coarse grains, wheat and flour, and especially rice are rising a good deal faster.

Some of the reasons for the diverging production and trade trends are structural. For example, the focus of demand is shifting away from coarse grains in favor of rice in part

because of increased urbanization which results in employment and time constraints that favor "ready-to-eat" cereals (rice) and cereal products (flour and couscous) over those requiring significant preparation inputs (coarse grains).

Additional explanatory variables are highlighted in AIRD's analysis of regional agricultural competitiveness. First, West African producers cannot compete against a backdrop of declining international commodity prices. Second, producers in the CFAF zone are further handicapped by an overvalued currency, which biases trade flows against exports and in favor of imports by making the latter artificially cheaper and the former artificially more expensive than they would be at an equilibrium exchange rate.

There is a large distinction between CFA zone countries and others in West Africa with regard to movements of their official exchange rates. By virtue of these currency realignments, the patterns of competitiveness with which sub-Saharan African countries produce both agricultural and non-agricultural goods has been significantly altered.

The analysis of economic competitiveness clearly shows that a number of producing regions in the western subregion have the economic potential to trade competitively across national borders. Under a non-distorted policy environment, rice and coarse grain cereals would probably flow eastward from the Middle and Upper Senegal River Valley and Upper Guinea into eastern Mali (and probably northward into Mauritania, though this has not been analyzed) and southward from southern Mali into northern Ivory Coast. Imported grain would satisfy much of consumer demand in coastal urban areas. Malian groundnut production might flow to Senegal for processing.

Yet in many instances the actual structure of production and trade within the region does not follow this pattern of comparative advantage. Instead, lack of integration of trade, exchange rate, and agricultural pricing policies within the zone has created an incentive structure that encourages duplication of efforts and rent-seeking behavior.

Economic Growth and Food Security in the Sahel

The evolution of the Sahelian economies has undergone substantial change over the past three decades. After a period of substantial growth following independence, a combination of drought and bad policy has resulted in economic stagnation, and in many cases a decline in per capita income. This has been accompanied by a marked deterioration in export earnings, a reduction in per capita food production, and a rise in food imports from commercial sources and food aid.

Although improved rainfall during the past six years has helped to increase food production, economic growth has been slow. At the same time, accelerating population growth in the face of stagnant per capita income is exacerbating problems of poverty and malnutrition. If the Sahelian countries are ever to escape this trap, a vision of long-term growth and

development must be elaborated that will focus the energies of donors and host countries on increasing incomes at the same time that food security is enhanced.

The debate in the Sahel over food self-sufficiency versus the exploitation of comparative advantage has raged for at least two decades. By now, however, the record of experience suggests that the single-minded pursuit of food self-sufficiency is costly, that this goal is unlikely to be achieved, and that it often may be inimical to economic growth.

Food self-sufficiency increased greatly in importance as an objective following the drought of 1972-74 and the rise in world market prices for food that occurred at about the same time. Not only was it costly to import food from the world market, when it was needed in the Sahel, but also it became increasingly difficult to obtain food aid. As a result, both donors and host countries emphasized enhancing the capacity of the Sahelian countries to produce more of their own food needs under secure conditions. This implied investment in irrigation and improving rainfed food production in areas that were often relatively marginal.

Although studies have not yet been undertaken to identify all areas of future comparative advantage for the Sahelian countries, enough has been done to permit at least a preliminary assessment, especially if one also looks at experience in other areas of the world. Broadly speaking, it appears that the Sahelian countries have two areas in which they have a growing comparative advantage. One is in the production of agricultural and livestock products for the West African market; the other is in the production of labor-intensive agricultural and manufactured goods for export to the rest of the world.

It is the interior of West Africa, especially, that has a comparative advantage in agricultural and livestock production for the region as a whole. Especially important are the coastal markets. Even today there is substantial excess demand for vegetable oils and meat, which the Sahelian countries could profitably fill in competition with imports if account is taken of the overvaluation of the CFA franc. Should growth in the coastal markets be restored to levels that existed during the 1960s and, to a lesser extent, the 1970s, there would be a substantial increase in demand for coarse grain cereals, rice, vegetable oils, cotton, meat, and other livestock products -- all goods in which the Sahelian countries have an increasing comparative advantage as the coastal countries continue to specialize in tree crops, forest products, and manufactured goods.

The other area of potential comparative advantage in the Sahel is products that can be exported to markets outside of West Africa. The most important of these are horticultural products and labor-intensive manufactured goods. Burkina Faso, Mali, and Senegal are already exporting irrigated fruits and vegetables despite the overvaluation of the CFA franc. If the franc were to be substantially devalued, these exports could doubtless be increased many times. This is because of the natural comparative advantage that the Sahel has with its abundant sunshine and relatively inexpensive labor.

In order for the potential of the Sahelian countries for economic growth to be realized, there are a number of important constraints that must be overcome. Among the more important of these are (1) a reduction or elimination of barriers to intraregional trade, (2) either devaluation of the CFA franc or the establishment of appropriate second-best policies that will not inhibit intraregional trade, (3) investment in transportation and communications infrastructure, (4) liberalization of investment regimes, and (5) establishment of a climate oriented towards export expansion and collaboration between foreign and domestic firms interested in this goal.

Medium-to-Long Term Perspective for the Sahel

The vision of economic growth presented in this document is predicated on a resurgence of activity not just within the Sahel but throughout West Africa. Several coastal economies are already well positioned for this to occur, most notably Ghana and Nigeria. A modest commitment to economic liberalization has also been made in Guinea, which should bode well for competitive exploitation of its rich natural resource base. Should the CFA franc zone countries be able to overcome their exchange rate constraint, outward-oriented industries could become reinvigorated in such places as Côte d'Ivoire and Senegal.

Growth of activity in these areas would generate increased demand for two of the Sahel's most abundant resources: labor and foodstuffs. As during the 1960s and 70s, Sahelians would migrate toward manufacturing and processing industries along the coast and into the accompanying service sectors. Those remaining behind would produce coarse grains, some rice, livestock products, edible oils, and a range of horticultural commodities for export to the coastal areas. An increasingly wider range of specialty commodities (spices, essential oils, cut flowers, etc.) could become competitive for export to overseas markets.

For such a vision to succeed, policy-makers must insure that uncompetitive industries are not unduly protected from international markets. This would indirectly penalize activities that are more economically competitive, by shifting resources to the protected industries. Exchange rates should be set at equilibrium levels so that wages within the CFA zone can be competitive with those in neighboring countries. Compensatory tariff structures, a second-best alternative to devaluation, would further penalize otherwise competitive industries. The lack of regional policy coordination increases the opportunities and incentives for rent-seeking behavior, away from economically viable investments.

To date, economic research on perspectives for regional agricultural market integration in West Africa has focused on the comparative advantage of particular production systems under alternative marketing assumptions. This analysis has identified those commodities that would be economically competitive in a liberalized economy. What is now needed is an integration of this microeconomic information with agricultural sector balance sheets to assess regional supply, demand, net availability, and identify potential deficit and surplus areas within the western subregion that would lead to expanded regional trade. It will permit the assessment of future

commodity flows in relation to existing transportation infrastructure and help identify needed investments.

Over the next year, AIRD will focus its research efforts in these areas. It will also continue the study of economic comparative advantage and incentives in livestock production, processing, and trade in West Africa's central corridor.

REGIONAL ECONOMIC INTEGRATION IN WEST AFRICA:

Potential for Agricultural Trade as an Engine of Growth in the Western Subregion

I. INTRODUCTION

The purpose of this document is to synthesize the information available to date, to place it in context vis-à-vis evolving research and policy initiatives, and to interpret the analysis for application to operational concerns. Several questions will be answered:

→ What can now be summarized about the role of economic integration in the promotion of economic growth and food security in the Sahel?

→ What does the analysis carried out to date indicate are the perspectives for regional integration of both cereals and more broadly defined agricultural markets in the western subregion?

→ Which policy reform scenarios hold the greatest promise for moving toward a better integrated regional market and therefore for promoting economic growth?

→ What additional research is needed to define these policy scenarios more appropriately?

→ Where are the likely economic growth areas in West Africa? What does this suggest for individual country development strategies and therefore for actual investment programs?

This report is organized as follows. Section II summarizes the evolution of the regional integration discussion in West Africa, beginning with the Mindelo conference in 1986 and continuing through today. Section III interprets the findings of research on regional agricultural trade and comparative advantage undertaken by the IRAM/AIRD partnership over the last few years. Section IV evaluates the role of regional economic integration in augmenting economic growth and food security in the Sahel, while section V assesses the implications of this work for policy reform and operational agendas of the USAID bilateral missions in West Africa.

* The authors are grateful to M. Lowdermilk, USAID/AFR/ARTS/FARA/FSP, for her comments.

II. BRIEF HISTORY OF THE DISCUSSION TO DATE

Increased regional economic integration is a theme dominating policy discussions from the European Economic Community to the Commonwealth of Independent States to the Pacific Rim to the North American Free Trade Area. It is reasonable, therefore, that much attention has been focused in recent years on regional trade in West Africa as a motivating force to promote economic growth.

In West Africa, a region which today encompasses nearly 200 million people, regional trade has been a focus of both the Economic Community of West African States (ECOWAS) and the Communauté Economique de l'Afrique de l'Ouest (CEAO). The creation of these regional trade organizations has not led to a marked increase in intra-community economic activity.[1] In the 1970s and early 1980s, climatic and food production crises in West Africa generated additional interest in regional trade as a mechanism for promoting regional food security. The nature of this discussion has evolved significantly over the last six years.

After a period of low rainfall and thus poor cereals harvests, discussion at a 1986 conference sponsored by the Club du Sahel and the Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel (CILSS) in Mindelo, Cape Verde focused on strategies to overcome what was then perceived to be a regional cereals deficit problem. The primary economic strategy identified at that time for overcoming the deficit was the promotion of a regional cereals market. This market would allow liberal cereals trade within a geographic zone concurrent with tariff protection vis-à-vis the external market. This recommendation led to the launching of a series of studies on informal cereals trade in West Africa by a franco-béninois team of social scientists in order to better identify the appropriate geographic and economic parameters.[2]

By 1989, enough baseline information had been gathered to permit another round of reflection. USAID and the World Bank organized a workshop in Washington in September of that year on food security and economic growth in the Sahel, which brought together a community of mostly North American-based researchers[3] in preparation for an international

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[1] For several recent summaries of the issues, see Elliot Berg, *Strategies for West African Economic Integration: Issues and Approaches* (Paris: Club/CILSS (SAH/D(91)382), November 1991; John O. Igue, "Les dimensions socio-politiques de l'intégration régionale en Afrique de l'Ouest," November 1991; and Johny Egg et Jérôme Coste, "Coopération régionale et dynamiques des sous-espaces agricoles en Afrique de l'Ouest," November 1991.

[2] The three collaborating institutions are INRA-ESR, the Institut National de la Recherche Agronomique's Département d'Economie et Sociologie Rurales, based in Montpellier; IRAM, the Institut de Recherches et d'Applications des Méthodes de Développement, based in Paris; and UNB, the Université Nationale du Bénin's Département de Géographie, based in Cotonou.

[3] Inter alia from Michigan State University, Tufts University, the International Food Policy Research Institute, the Université de Laval, and a number of American consulting firms, including Associates for International Resources and Development (AIRD).

conference in Lomé, held in November. Contributions from the Lomé conference were several. Acknowledgement was made for the first time of the importance of the coastal West African countries to the Sahelian agricultural economy. The linkage between cereal, non-cereal agricultural, and livestock commodities was also acknowledged. Economists openly discussed notions of agricultural sector comparative advantage and exchange rate disequilibria. While Lomé was not a watershed for policy recommendations, it did serve to focus subsequent research directions. The INRA-IRAM-UNB team presented its preliminary findings, which organized subsequent research and discussion around three subregions in West Africa. They are the West (Mauritania, Mali, Senegal, Gambia, Guinea-Bissau, Guinea-Conakry, Sierra Leone), the Center (Mali, Côte d'Ivoire, Liberia, Burkina Faso, Ghana), and the East (Nigeria, Cameroon, Niger, Benin, Togo), with overlap amongst the three.

In 1990 and 1991, collaborative research by INRA-IRAM-UNB and AIRD concentrated on the western subregion. While the two teams did not always work directly together in terms of the methodologies used and the data collected, their efforts were of a complementary nature, with each exploiting its own comparative advantage in terms of researcher skills and experience.[4] Data were shared among the team members, and analyses were strengthened by mutual critiques of works in progress. This resulted in a comprehensive body of research on existing and potential trade in the subregion.

A detailed description of the regional cereals economy was produced, along with an inventory of the relevant cereals price, trade, and incentives policies.[5] An analysis of the degree of overvaluation of the CFA franc was also prepared.[6] An evaluation of the economic competitiveness of cereals production in the western subregion (including northern Côte d'Ivoire) is available, and a parallel analysis of traditional cash crop competitiveness is underway.[7]

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[4] A methodological critique of the contributions from IRAM-INRA-UNB and AIRD is currently under joint preparation.

[5] INRA-IRAM-UNB, *Echanges céréaliers et politiques agricoles dans le sous-espace ouest: Quelle dynamique régionale? (Rapport de Synthèse)* (Paris: Club/CILSS (SAH/D/91/367), April 1991) (hereafter, *Synthesis*); and Béatrice Hibou, *Analyse comparée des politiques de protection et de régulation des marchés céréaliers ouest-africains* (Paris: INRA-IRAM-UNB, October 1990) (hereafter, *Policies*).

[6] B. Lynn Salinger and J. Dirck Stryker, *Exchange Rate Policy and Implications for Agricultural Market Integration in West Africa*, AIRD consultant report prepared for USAID, May 1991 (hereafter, *Exchange Rate Policy*).

[7] AIRD, *Incitations, avantages comparatifs et échanges régionaux de céréales dans le sous-espace ouest: Cas de la Guinée, du Mali et du Sénégal* (Paris: Club/CILSS (SAH/D/91/372), April 1991); Abdoul W. Barry, "Les cultures traditionnelles d'exportation," (Draft), October 1991. Additional analysis of the competitiveness of cereals and traditional export crop production in northern Côte d'Ivoire is under preparation. A final, integrated document presenting all three sets of results is expected shortly (hereafter, Barry, *Comparative Advantage*).

Policy reform scenarios have been prepared by both teams.[8] To date, IRAM's scenarios work is a more general analytic framework for evaluating the welfare effects of a wide range of policy reform options, while AIRD's contribution has focused on several "likely" policy reform scenarios, defined in conjunction with IRAM, in order to detail the trade-offs necessary in order for these reforms to be achieved. The conclusions of this research were presented at a May 1991 meeting in Bamako of policy makers and private sector representatives from each of the countries of the western subregion.

Discussions in Bamako highlighted the complexity of the trade-offs involved in moving toward a more integrated regional market. Differences in the degree of economic adjustment already accomplished by the individual countries, particularly those involving changes in the exchange rate, lead to very different interests regarding key policy variables such as the appropriate level of trade protection. The current structure of the cereals trader network also raises the question of the efficiency with which price signals will actually be transmitted to producers and consumers.

Meanwhile several initiatives have been launched of a more operational nature. A policy coordination unit known as CINERGIE has been set up at the African Development Bank to facilitate Sahelian-coastal country discussions. Ministers of Agriculture from sixteen West and Central African countries have met twice in 1991 under the aegis of the Senegalese Minister of Agriculture Cissokho to discuss the development of a regional common market in West Africa for agricultural and agro-industrial products.[9] Their discussions have led to the creation of a number of sector-specific action dossiers.[10] In a separate effort, the French government has

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[8] INRA-IRAM-UNB, *Echanges céréaliers et politiques agricoles dans le sous-espace ouest-Quelles perspectives? Note sur le scénario tendanciel et sur les variantes de politique économique* (Paris: Club/CILSS (SAH/D/91/376), May 1991); Jean Coussy and Béatrice Hibou, *Variantes de politiques nationales des échanges extérieurs et marchés céréaliers en Afrique de l'Ouest: Analyse comparative dans le sous-espace ouest* (Paris: INRA-IRAM-UNB, July 1991) (hereafter, *IRAM Scenarios*); J. Dirck Stryker and B. Lynn Salinger, *Trade, Agricultural Policy, and the Dynamics of Regional Zones in West Africa: Scenarios for Regional Economic Integration of the Cereals Market in the Western Sub-region* (Cambridge, MA: AIRD, May 1991) (hereafter, *AIRD Scenarios*).

[9] Conférence des Ministres de l'Agriculture de l'Afrique de l'Ouest et du Centre, "Compte rendu de la réunion sur le suivi du programme d'actions," (Dakar, October 8, 1991).

[10] The following assignments have been made. Mali is responsible for the regional cereals market dossier; Cameroon for the regional livestock/meat market dossier; Togo for the regional oilseeds market dossier; Côte d'Ivoire for the regional organization of export promotion; Guinea-Conakry for the regional market dossier of "other" commodities (fruits and vegetables, short-cycle livestock (poultry, pork, sheep), roots and tubers, and maritime products); Nigeria for the regional organization of applied research; and Burkina Faso for follow-up on agricultural sector support topics such as rural credit, research, training and extension, natural resources, land rights, communication and transport networks. Senegal is responsible for regional policy coordination and general management.

sponsored a series of discussions to examine the potential for strengthening the economic union among Franc zone countries.[11]

III. WESTERN SUBREGION RESEARCH RESULTS TO DATE

Cereals Sector Trends

IRAM's synthesis report on the cereals economy of the western subregion (Cape Verde, Gambia, Guinea, Guinea-Bissau, Mali, Mauritania, and Senegal) highlights a rising dependence on the international market for cereals supply, especially rice. This is the result of diverging production and consumption trends. In twenty years, the composition of demand has shifted slightly in favor of rice to the detriment of coarse grains. While growth in production of both rice and coarse grains is at least matching growth in population, imports of coarse grains, wheat and flour, and especially rice are rising a good deal faster.[12]

Table 2.1: TOTAL CEREALS AVAILABILITY ('000 tons) AND AVAILABILITY PER CAPITA (kg/cap)

	Rice		Wheat + Flour		Coarse Grains		Total	
	67/69	86/88	67/69	86/88	67/69	86/88	67/69	86/88
Production	389	598	2	3	1191	2407	1582	3008
Imports	221	884	238	496	88	146	547	1526
Total Availability	610	1482	240	499	1279	2553	2129	4534
Population	15.8	24.8	15.8	24.8	15.8	24.8	15.8	24.8
Availability per capita	39 (29%)	60 (33%)	15 (11%)	20 (11%)	81 (60%)	103 (56%)	135 (100%)	183 (100%)

Source: INRA-IRAM-UNB, *Synthesis*, Annex 2, p. 6.

[11] République Française, Ministère de la Coopération et du Développement, "Note: Réunion de Ouagadougou - 25 avril 1991: Vers l'intégration régionale et l'union économique - Quelques chantiers concrets engagés ou envisagés," 1991; République Française, Ministère de la Coopération et du Développement, "Note: Zone franc: de la communauté de monnaie à l'intégration des règles et l'union économique; présentation des travaux et des réalisations," 8 July 1991; République Française, Ministère de la Coopération et du Développement, "Memorandum: Droit régional des affaires dans la zone franc; problématique, termes de référence et modalités des travaux," 27 June 1991; République Française, Ministère de la Coopération et du Développement, "Memorandum: La protection sociale dans la zone franc: constat et perspectives," 1991.

[12] Some of the apparent growth of production may have been due to the return of relatively favorable rains during 1986-88. Although this may have led to some increase in per capita consumption, there was also a rebuilding of stocks and possibly some wastage.

Table 2.2: AVERAGE ANNUAL POPULATION AND PRODUCTION GROWTH RATES (1967 - 1988)

Population	2.50 %	
Production	2.95 %	
Coarse Grains		3.50 %
Rice		2.50 %
Imports	5.50 %	
Coarse Grains		2.00 %
Rice		7.60 %
Wheat and Flour		4.50 %

Source: INRA-IRAM-UNB, *Synthesis*, p. 21.

Some of the reasons for the diverging production and trade trends are structural. For example, the focus of demand is shifting away from coarse grains in favor of rice in part because of increased urbanization which results in employment and time constraints that favor "ready-to-eat" cereals (rice) and cereal products (flour and couscous) over those requiring significant preparation inputs (coarse grains).

Additional explanatory variables are highlighted in AIRD's analysis of regional agricultural competitiveness. First, West African producers cannot compete against a backdrop of declining international commodity prices. Second, producers in the CFAF zone are further handicapped by an overvalued currency, which biases trade flows against exports and in favor of imports by making the latter artificially cheaper and the former artificially more expensive than they would be at an equilibrium exchange rate.

Decline in International Commodity Prices

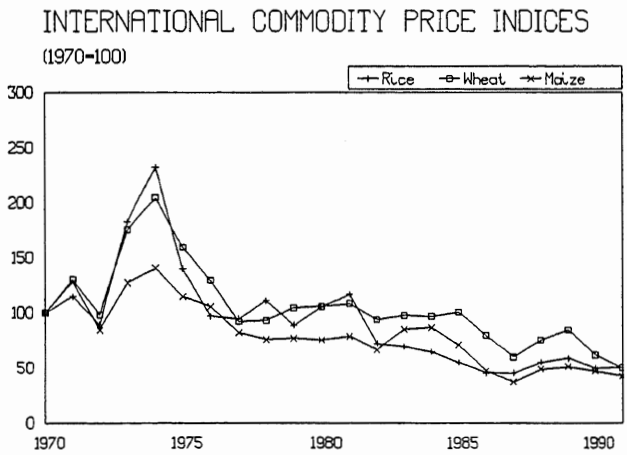
International agricultural commodity markets have witnessed a dramatic decline in price levels since the early 1970s when they hit their all-time peak. In part, this trend is due to increasing subsidies on the part of certain major producers and exporters. In part, it is also due to the effects of Green Revolution technological innovations which have dramatically increased technical efficiency. Finally, the decline in rice prices is largely due to increased diversification of Asian diets associated with rapid growth of per capita income. Some trends are highlighted in Table 2.3 below.

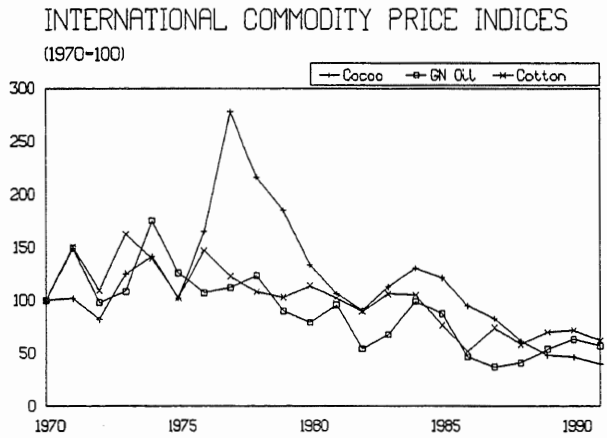
Table 2.3: INTERNATIONAL AGRICULTURAL COMMODITY PRICE TRENDS (1990 Prices, $/ton)

Year	Rice	Wheat	Maize	Cocoa	GN Oil	Cotton
1970	580	254	233	274	1526	2536
1971	665	330	299	278	2274	3816
1972	515	249	196	224	1493	2769
1973	1059	445	296	342	1652	4114
1974	1346	519	328	387	2674	3526
1975	811	404	268	279	1916	2591
1976	562	328	247	452	1632	3723
1977	545	233	191	760	1709	3108
1978	641	235	176	592	1880	2736
1979	514	265	178	506	1366	2600
1980	609	268	175	365	1205	2876
1981	675	274	183	291	1457	2585
1982	416	237	155	247	830	2270
1983	402	247	197	308	1032	2686
1984	374	245	202	356	1509	2656
1985	318	255	165	331	1332	1943
1986	262	201	110	258	710	1323
1987	261	152	86	226	568	1875
1988	319	191	113	168	625	1483
1989	340	214	119	132	824	1775
1990	287	156	109	127	964	1820
1991	292	127	99	109	871	1577

Note: Rice - Thai 5% broken, FOB Bangkok
Wheat - Canadian No. 1 Western Red Spring, Thunder Bay
Maize - US No. 2 Yellow, FOB US Gulf ports
Cocoa - Annual average ICCO daily price
Groundnut Oil - Any origin, CIF Rotterdam
Cotton - Outlook "A" Index, Middling 1-3/32", CIF N Europe
Current prices deflated by MUV index, 1990=100

As seen above, international commodity prices in 1990 are half what they were in 1970, and far below what they were during the peak of the international commodity price boom of 1973-75. The trends are presented in two graphs below.





Overvalued Exchange Rate

In addition, many West African countries have had to contend with macroeconomic disequilibria, one result of which has been the overvaluation of their domestic currencies. When a domestic currency becomes overvalued, it becomes artificially cheaper to purchase goods from abroad and more expensive to sell domestic products on foreign markets. Given the high levels of overvaluation witnessed during the 1970s and early 1980s (see Table 2.4 below), devaluation has been one classical cornerstone of many of the structural adjustment programs undertaken in West Africa to date.

The franc zone countries, however, have not utilized this adjustment tool. While this reflects in part tighter macroeconomic management practiced within the zone as compared with other West African economies, a positive benefit of the fixed exchange rate system they share with France, current balance of payments difficulties in franc zone countries combined with high average levels of import tariffs suggest that the CFA franc may be substantially overvalued vis-à-vis the French franc -- on the order of at least 50% (*Exchange Rate Policy, 1991*).[13]

[13] The degree of overvaluation was estimated using the elasticities approach, which asks by how much would the exchange rate have to change in order to achieve balance of payments equilibrium if all trade taxes and quantitative restrictions were removed and assuming a reasonable level of sustainable capital inflows.

Table 2.4:
OFFICIAL EXCHANGE RATE INDICES
(local currency/U.S. dollar, 1990=100)

Year	CFA Zone	Guinea (89=100)	Ghana	Nigeria
1968	110	2410	31993	1125
1969	105	2410	31993	1125
1970	99	2410	31993	1125
1971	99	2420	31530	1128
1972	108	2622	24481	1222
1973	122	2876	28011	1222
1974	113	2890	28377	1278
1975	127	2876	28377	1306
1976	114	2782	28377	1283
1977	111	2821	28377	1247
1978	121	3022	18500	1266
1979	128	3116	11867	1334
1980	129	3133	11867	1471
1981	100	2848	11867	1301
1982	83	2657	11867	1194
1983	71	2577	3696	1111
1984	62	2470	907	1049
1985	61	2450	600	901
1986	79	164	366	458
1987	91	139	212	200
1988	91	125	161	177
1989	85	100	121	109
1990	100		100	100

Source: Salinger and Stryker, *Exchange Rate Policy*
Note: A decrease in the official exchange rate index indicates a depreciation of the domestic currency vis-a-vis the U.S. dollar.

In the competitiveness analysis (Barry, *Comparative Advantage*), the following exchange rates and assumed degrees of overvaluation were used:

	Official Exchange Rate	Degree of Overvaluation
Côte d'Ivoire	275 CFAF/$	50%
Guinea	655 FG/$	9%
Mali	275 CFAF/$	50%
Senegal	275 CFAF/$	70%

Agricultural Sector Competitiveness

As seen in Table 2.4, there is a large distinction between CFA zone countries and others in West Africa with regard to movements of their official exchange rates. By virtue of these currency realignments, the patterns of competitiveness with which sub-Saharan African countries produce both agricultural and non-agricultural goods has been significantly altered.

Comparative Wage Rates

Although export competitiveness has been determined historically in West Africa by its comparative advantage in primary products such as coffee, cocoa, timber, oil palm, groundnuts, cotton, livestock, and minerals, the scope for increasing or even sustaining exports of these natural resource-abundant products is narrowing as good land and mineral deposits are being exhausted. Further growth of exports in Africa will depend increasingly on labor-intensive production of non-traditional products, such as those of horticulture and industry. This implies that the wage rate will become an increasingly important variable in determining comparative advantage.

At present, there are substantial disparities in wage rates between different African countries when these are measured at the official exchange rate. Some comparisons are presented for daily rural wage rates in Table 2.5.

Table 2.5: COMPARATIVE DAILY RURAL WAGE RATES

Country	Wage Rate in Local Currency	Exchange Rate	Wage Rate in U.S. Dollars
Ghana	400 cedis/day	350 cedis/$	$1.14
Guinea	700 GF/day	655 GF/$	$1.07
Ivory Coast	800 CFAF/day	275 CFAF/$	$2.91
Mali	650 CFAF/day	275 CFAF/$	$2.36
Senegal	600 CFAF/day	275 CFAF/$	$2.18

Source: Salinger and Stryker, *Exchange Rate Policy*

It is clear from this table that the CFA countries suffer a substantial competitive disadvantage vis-à-vis the non-CFA countries. The former's wage rates, measured in terms of US dollars, are two to three times the latter's. Yet productivity differences between these countries are slight. Over the longer term, the implied differences in wage costs are bound to have an extremely detrimental effect on the CFA countries' exports.

One factor that has improved the situation in recent years has been the return of reasonably normal rainfall, especially in the Sahel. This has greatly decreased the prices of coarse grains, which are not imported to any great extent so that their prices are largely determined by conditions of domestic demand and supply. Since these cereals are an important wage good, this has put downward pressure on nominal wages and helped to decrease the disequilibrium in the balance of payments. Labor markets all over West Africa are linked by migratory flows, however, so that the benefits have been felt in non-CFA countries as well as in those whose currencies are linked to the French franc.

Domestic Resource Cost Analysis

Wage rates are just one indicator of competitiveness, however, and because they are distorted by existing exchange rates, they are not a very good indicator of underlying patterns of comparative advantage. In order to assess those patterns, AIRD has completed an analysis of the economic costs of production of cereals and traditional cash crops in Côte d'Ivoire, Guinea, Mali, and Senegal. This represents a broadening of the original Club du Sahel mandate to assess the subregion's cereals economy. Analysis of traditional cash crops is included in order to assess competitiveness across a more diverse range of agricultural activities, representing a more complete range of agricultural options available to the region's producers.[14]

As an indicator of comparative advantage, the Domestic Resource Cost (DRC) coefficient is the ratio of the total economic value of domestic factors of production (land, labor, capital) used to produce a unit of output to the total economic value-added (economic value of output minus the economic value of tradable inputs) generated by the activity, or

$$DRC_j = \frac{\sum (L,W,K)}{(P_{wj} - \sum_i P_{wi}(a_{ij}))}$$

where DRC_j = the DRC for one unit of output j,
L = labor,
W = land,
K = capital,
P_{wj} = world price of output j,
P_{wi} = world price of tradable input i, and
a_{ij} = tradable input i used in the production of output j.

By "economic value," it is understood that the effects of all policy distortions (ie., taxes, subsidies, quotas, other quantitative restrictions) have been eliminated from the border, or reference, price of tradables (output and input). In the case of non-tradable factors of

[14] Clearly, the range of activities presented here is still somewhat limited. An analysis of different livestock activities is expected to be carried out by AIRD later this year. See Jeffrey Metzel and Andrew Cook, "Proposal for an Evaluation of Economic Comparative Advantage and Incentives in Livestock Production and Trade in West Africa's Central Corridor," submitted to USAID, January 10, 1992.

production, "economic value" refers to the opportunity cost of the factor, or its return when used in the best alternative activity. The reference price for an input-substitution commodity is the international price, CIF, at the country's border, to which transport and handling costs between the border and the relevant point of comparison (usually urban wholesale market) are added. The reference price for an export commodity is the international price, FOB, at the country's border, from which transport and handling costs between the border and the relevant point of comparison (usually the processing plant) are subtracted.

A DRC of less than one indicates that the country spends less in domestic factors of production than it gains in tradable value-added, indicating that scarce resources are being used efficiently. A producer or production system with a DRC of less than one is therefore said to be competitive. On the other hand, if the production system is spending more in scarce domestic resources than it gains in value-added (DRC is greater than one), or if the activity actually loses value-added (negative DRC), it is said to be uncompetitive.

The DRC is calculated using average costs of production, although it is most meaningful when it analyzes costs at the margin, ie. of the production system(s) (defined according to region, technology) most likely to provide additional expansion of output. It is sometimes criticized for being a static measure, although computerization of the calculations allows for ready sensitivity analysis of the DRC with respect to changes in key parameters such as yields, world prices, exchange rates, labor costs, etc. (i.e. how does the value of the DRC change when the value of one or more parameters is changed, holding all others constant).

DRC coefficients in the base case scenario were estimated at the wholesale urban market, representing the competitiveness of production for satisfaction of consumer demand in the urban center. DRCs were also calculated at farmgate, to show the competitiveness of production for on-farm consumption. All cereals were analyzed as import-substitution activities, while cotton and most groundnut activities were analyzed as export activities. The groundnut oil analysis was

done in Mali, however, as both an import substitute (M) and possible export (X) activity. Analyses were run using 1990 world prices, wage rates, exchange rates, and yields.[15]

Until now, DRC analyses have been carried out for individual countries in West Africa to assess which agricultural activities represent an efficient use of their domestic resources.[16] To date, however, little attention has been paid to issues of regional competitiveness across countries. A comparison of cereals and non-cereals DRCs across the western subregion is the first step in assessing what economic patterns of production and trade would result from an integration of several economies, assuming liberalization and harmonization of trade, exchange rate, and pricing policies within the zone and assuming liberalization vis-à-vis external markets. Results of the analysis are presented in Tables 2.6 - 2.9 below.

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[15] The following global parameters were used:

	World Price		Insurance+Freight	
Rice	285	FOB, Thailand, 5% brokens	48	
Qual.Adj.	-30%	(Mali,Senegal, Côte d'Ivoire)		
Qual.Adj.	-20%	(Guinea)		
Maize	100	FOB, US Gulf, No. 2 Yellow	48	
Sorghum	100	FOB, US Gulf, (same as maize)	48	
Cotton	1820	CIF, N Europe, Outlk "A" index, 1-3/32"	85	(from Guinea)
			122	(from Mali)
			101	(from Senegal)
Qual.Adj.	-3%	(Côte d'Ivoire)		
	-1%	(Guinea, Mali)		
	+1%	(Senegal)		
Groundnuts (confection)	1091	CIF, N Europe	62	(from Senegal)
Groundnuts (oil)	465	CIF, N Europe	62	(from Senegal)
Gr'nut Oil	965	CIF, N Europe	63	(from Senegal)

[16] See, for example, J. Dirck Stryker et al., *Incentive System and Economic Policy Reform in Mali* (AIRD, June 1987); World Bank, "Domestic Resource Cost in Senegal" (draft), November 30, 1990; Patricia Kristjanson et al., *Export Crop Competitiveness: Strategies for Sub-Saharan Africa*, APAP Technical Report No. 109 (Abt Associates, July 1990).

Table 2.6: DOMESTIC RESOURCE COST COEFFICIENTS FOR SELECTED WEST AFRICAN COUNTRIES: RICE

Commodity	Country	Technique Level	Yields	Farm DRC	Wh'sale DRC
Rice	Côte d'Ivoire	Manual, traditional, upland (North)	900	0.79	1.72
		Manual, traditional, upland (Forest)	1300	0.56	1.28
		Animal traction, improved, upland (North)	1800	0.94	3.19
		Manual, improved, upland (Forest)	2200	0.85	2.41
		Manual, improved, lowlands (Forest)	3500	0.80	1.97
		Manual, improved, irrigated (North)	4000	1.09	3.88
	Guinea	Animal traction, rainfed (Upper Guinea)	600	0.65	2.05
		Manual, traditional, rainfed (Forest)	750	0.48	1.72
		Manual, improved, rainfed (Forest)	1450	0.40	1.68
		Manual, traditional, mangrove (Maritime)	1500	1.22	2.04
		Manual, improved, swamp (Forest)	2500	0.47	1.99
	Mali	Traditional flooded (Mopti/Ségou)	700	0.56	1.00
		Controlled flooded (Mopti/Ségou)	1200	0.41	0.80
		Irrig, non-rehabilitated (Office du Niger)	2300	0.45	0.91
		Irrig, semi-intensive (Office du Niger)	2783	0.35	0.73
		Irrig, intensive (Office du Niger)	3836	0.37	0.76
	Senegal	Semi-intensive (Upper Casamance)	1200	1.82	6.50
		Semi-intensive (Delta/Fleuve)	4250	0.59	2.32
		Semi-intensive (Middle River Valley)	5000	0.51	3.30
		Intensif (Delta/Fleuve)	5250	1.24	6.77
		Intensif (Upper River Valley)	6050	0.70	2.86

Source: Barry, *Comparative Advantage.*
Note: Yields = kg paddy/ha.

Table 2.7: DOMESTIC RESOURCE COST COEFFICIENTS FOR SELECTED WEST AFRICAN COUNTRIES: COARSE GRAINS

Commodity	Country	Technique Level	Yields	Farm DRC	Wh'sale DRC
Maize	Côte d'Ivoire	Manual, traditional (Center)	700	0.67	1.38
		Manual, improved (Center)	1500	0.70	1.56
		Animal traction, improved (Center)	2000	0.42	1.04
	Guinea	Manual, traditional (Middle Guinea)	800	0.79	2.00
		Manual, improved (Middle Guinea)	1400	0.59	1.62
	Mali	Manual, improved (Mali Sud)	1600	0.57	0.98
		Animal traction, improved (Mali Sud)	2000	0.43	0.79
	Senegal	Extensive (Casamance)	1000	1.20	1.82
		Semi-intensive (Casamance)	1200	0.69	1.18
		Semi-intensive (Groundnut Basin)	1400	0.49	0.87
		Intensive (Casamance)	1500	0.78	1.56
		Semi-intensive (Delta/Fleuve)	1700	1.12	2.88
		Intensive (Groundnut Basin)	2000	0.35	0.66
Mil/Sorg	Côte d'Ivoire	Manual, traditional (North)	600	0.58	1.32
		Animal traction (North)	800	0.42	1.07
	Mali	Manual, traditional (Mali Sud)	600	0.51	0.84
		Animal traction (Mali Sud)	800	0.38	0.67
	Senegal	Late season (Senegal Oriental)	400	1.20	1.81
		Extensive (Groundnut Basin)	500	0.77	1.07
		Semi-intensive (Groundnut Basin)	700	0.69	1.01
		Semi-intensive (Casamance)	800	1.14	1.82
		Semi-intensive (Delta/Fleuve)	3000	0.57	0.86

Source: Barry, *Comparative Advantage.*
Note: Yields = kg/ha.

Table 2.8: DOMESTIC RESOURCE COST COEFFICIENTS FOR SELECTED WEST AFRICAN COUNTRIES: COTTON

Commodity	Country	Technique Level	Yields	Wh'sale DRC
Cotton	Côte d'Ivoire	Manual, improved (Center)	1100	0.78
		Animal traction (North)	1200	0.68
		Mechanized (North)	1300	0.58
	Guinea	Mechanized, improved (Upper Guinea)	1270	0.43
	Mali	Manual, improved (Mali Sud)	1200	0.64
		Animal traction, improved (Mali Sud)	1500	0.45
	Senegal	Semi-intensive (Middle Casamance)	1000	0.49
		Semi-intensive (Senegal Oriental)	1000	0.45
		Intensive (Middle Casamance)	1200	0.43
		Intensive (Senegal Oriental)	1200	0.41
		Semi-intensive (Upper Casamance)	1300	0.38
		Intensive (Upper Casamance)	1500	0.36

Source: Barry, *Comparative Advantage.*
Note: Yields = kg seed cotton/ha.

Table 2.9: DOMESTIC RESOURCE COST COEFFICIENTS FOR SELECTED WEST AFRICAN COUNTRIES: GROUNDNUTS

Commodity	Country	Technique Level	Yields	Wh'sale DRC
Groundnuts (confection)	Senegal	Intensive (Sine Saloum)	1300	0.51
Groundnuts (oil nuts)	Côte d'Ivoire	Manual, traditional (North)	700	0.90
		Manual, improved (North)	1300	0.75
	Guinea	Manual, traditional (Upper Guinea)	650	1.56
		Manual, improved (Upper Guinea)	1200	1.48
	Mali	Animal traction, improved (Mali Ouest)	1000	1.97
	Senegal	Extensive (Casamance)	800	1.21
		Extensive (Sine Saloum)	900	0.49
		Extensive (Senegal Oriental)	900	0.86
		Semi-intensive (Sine Saloum)	1000	0.57
		Semi-intensive (Groundnut Basin)	1000	0.91
		Semi-intensive (Senegal Oriental)	1000	1.00
		Semi-intensive (Casamance)	1000	1.11
		Intensive (Sine Saloum)	1100	0.63
		Intensive (Groundnut Basin)	1200	0.67
Groundnut Oil	Mali	Animal traction, improved (M) (Mali Ouest)	1000	1.54
		Animal traction, improved (X) (Mali Ouest)	1000	2.34
	Senegal	Extensive (Casamance)	800	0.96
		Extensive (Sine Saloum)	900	0.41
		Extensive (Senegal Oriental)	900	0.70
		Semi-intensive (Sine Saloum)	1000	0.47
		Semi-intensive (Senegal Oriental)	1000	0.81
		Semi-intensive (Casamance)	1000	0.87
		Semi-intensive (Groundnut Basin)	1000	0.72
		Intensive (Sine Saloum)	1100	0.55
		Intensive (Groundnut Basin)	1200	0.53

Source: Barry, *Comparative Advantage.*
Note: Yields = kg unshelled groundnuts/ha.

Results of the base case analysis suggest that comparative advantage in rice production is centered as far away from the coast as possible, in the Office du Niger and in the Mopti/ Ségou regions of Mali. DRCs of rice produced for consumption in the wholesale center range from 0.73 to 1.00 here, compared with coefficients well above 1.00 elsewhere. This is largely because cheap rice imports compete effectively with domestic production in the coastal consumption centers of Dakar, Conakry, and Abidjan. Cereals produced for on-farm or local

consumption compete by and large with imports, on the other hand, due to the high cost of transporting imported rice into the interior.

Changing the assumed consumption center, therefore, clearly affects the competitiveness of production systems. For example, to the extent that rice produced in the Middle Senegal River Valley is destined for consumption not in Dakar but in western Mali, production may be competitive as well.[17] Mali's comparative advantage also reflects much more expensive maintenance costs of infrastructure in Senegal and Côte d'Ivoire, not compensated by sufficiently higher productivity.[18]

Southern Mali and the Senegal Groundnut Basin have a comparative advantage in maize production. Maize produced in Upper Guinea cannot compete with potential maize imports in Conakry; however, again to the extent that this production is marketed to the north in the Casamance of Senegal or toward Tambacounda, it would become economically profitable. Southern Mali and some areas of Senegal are also competitive producers of millet and sorghum for the urban market. Production is competitive almost everywhere for on-farm consumption.

On the export crop side, all countries produce cotton competitively vis-à-vis the international market, though Senegal would appear to be the lowest cost producer. Its DRCs range from 0.36 to 0.49, compared with 0.45 to 0.64 in Mali and 0.58 to 0.78 in Côte d'Ivoire. Guinean production, still in its infancy stages, has a strong DRC of 0.43, suggesting that this commodity may have the potential to become an important foreign exchange earner for Guinea in the future. Senegal also enjoys a clear comparative advantage in the production of groundnuts, both for confectionary use and for processing into oil. Malian production, even for import-substitution, has a DRC of 1.54 and thus it probably does not make the relatively best use of domestic resources.

Sensitivity Analysis of DRC Results

These results are obviously to be interpreted cautiously. Table 2.10 below compares the base case DRCs, as reported above, with the DRCs of selected production systems which would obtain in the case of (independent) changes in three key parameters: exchange rate, yields, and world prices. Were the DRCs calculated at 1990 official exchange rates rather than at equilibrium exchange rates, DRCs would appear far less favorable, particularly for most of the CFA franc zone countries. However, this is not necessarily the case for cereals production in Mali, where productivity is relatively higher. Even at the official exchange rate of 275 CFAF/$,

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[17] Stryker and Salinger, *AIRD Scenarios*, p. 6.

[18] In evaluating irrigated production scenarios, the cost of irrigation infrastructure maintenance was included in each system's costs of production. Investment costs, however, were treated as sunk and were excluded from the analysis. This assumption is appropriate to assess comparative advantage of commodities produced in existing irrigation schemes. It would not be appropriate, however, if the objective were to analyze comparative advantage of new irrigation schemes under consideration.

Malian cereals DRCs range from 1.01 to 1.20. While these are indeed above 1.00, given the variability of other parameters such as yield, they are probably not far off the mark.

Table 2.10: SENSITIVITY OF SELECTED DOMESTIC RESOURCE COST COEFFICIENTS WITH RESPECT TO CHANGES IN KEY PARAMETERS

Commodity	Country	Technique Level	Base DRC	At OER	Yields ↑20%	P World ↑25%
Rice	Côte d'Ivoire	Man, trad, upland (Forest)	1.28	1.92	1.12	1.05
		Man, impvd, irrig (North)	3.88	5.83	2.70	2.54
	Guinea	Man, impvd, rfed (Forest)	1.68	1.84	1.48	1.23
		Man, impvd, swamp (Forest)	1.99	2.17	1.71	1.42
	Mali	Contr.flooded (Mopti/Ségou)	0.80	1.20	0.68	0.68
		Irrig, semi-int (Off Niger)	0.73	1.09	0.61	0.61
	Senegal	Semi-int (Delta/Fleuve)	2.32	3.95	1.95	1.65
		Intensive (Upper Riv Val)	2.86	4.86	2.07	1.79
Maize	Côte d'Ivoire	Anim trac, impvd (Center)	1.04	1.56	0.89	0.88
	Guinea	Man, impvd (Middle)	1.62	1.77	1.39	1.32
	Mali	Anim trac, impvd (Mali Sud)	0.79	1.18	0.66	0.70
	Senegal	Semi-int (Casamance)	1.18	2.01	0.97	0.99
Mil/Sorg	Côte d'Ivoire	Anim trac (North)	1.07	1.60	0.93	0.91
	Mali	Anim trac (South)	0.67	1.01	0.58	0.61
	Senegal	Semi-int (Gr'nut Basin)	1.01	1.71	0.83	0.85
Groundnut Oil	Mali	Anim trac, impvd (M) (Ouest)	1.54	1.75	1.30	1.17

On the other hand, assuming either higher yields or higher world prices yields a more favorable DRC as compared with that of the base case. Over the last ten years, constant-dollar international prices have fluctuated 16% for rice, 23% for cotton lint, 29% for maize, and 31% for groundnut oil, as measured by the coefficient of variation.[19] However, neither a 20% improvement in yields nor a 25% strengthening of prices on the international reference market results in dramatic changes in DRCs. That is, those production systems which were truly

[19] Coefficient of variation equals standard deviation (1982 to 1991) divided by mean (1982 to 1991).

uncompetitive in the base case remain so after these changes in assumptions. Only those systems with borderline DRCs (1.00 to 1.20) show much improvement after one of these variations.

More sophisticated analysis has also been carried out for one production system in each of three commodities: rice, cotton, and groundnut oil. Two key independent parameters, international prices and yields, are considered not as single observations but as distributions around expected means and are allowed to vary simultaneously. For international prices, the actual means and distribution of real prices from 1982 to 1991 are applied. For yields, the actual distribution of aggregate yields at the national level from 1980 to 1990 is analyzed, and its standard deviation is then scaled to the original yield assumptions used in the models.

Assuming that both yields and international prices are distributed normally, the following results are obtained, running a Monte-Carlo simulation with 250 iterations:[20]

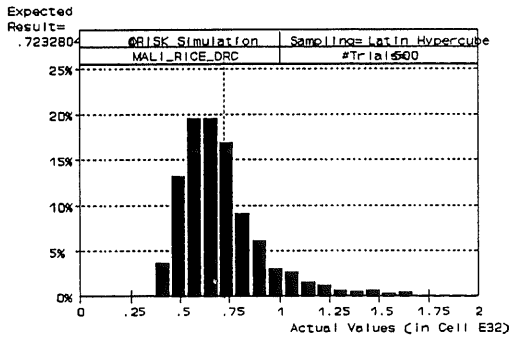
Table 2.11: VARIATIONS IN DOMESTIC RESOURCE COST COEFFICIENTS ASSUMING VARIATIONS IN INTERNATIONAL PRICES AND YIELDS

Commodity	Country	Technique Level	Original DRC	Expected DRC	Standard Deviation	Probability DRC < 1.00
Rice	Mali	Irrig, semi-intensive (Office du Niger)	0.73	0.72	0.28	90%
Cotton	Senegal	Intensive (Upper Casamance)	0.36	0.39	0.25	92%
Groundnut Oil	Senegal	Intensive (Groundnut Basin)	0.53	0.44	4.32	81%

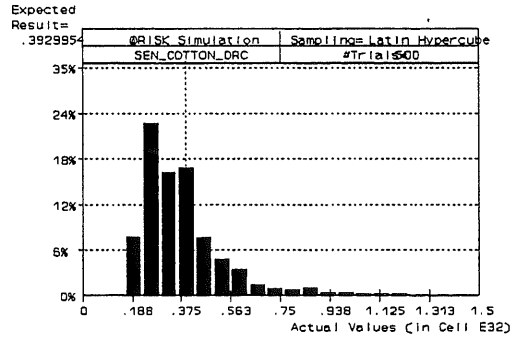
For a given commodity and production system, when both world price and yield vary simultaneously there is a distribution of DRCs clustering around a mean or expected value. Statistical tests confirm the probability that the DRC will actually be less than 1.00 (competitive system). For example, in the case of rice produced under semi-intensive conditions in the Office du Niger in Mali, the simple spreadsheet analysis (run without expected distributions for world price and yield) resulted in a DRC of 0.73. In fact, there is a 90% probability that this DRC will be below 1.00 when world price and yield are allowed to vary; the expected DRC value is actually 0.72, with a standard deviation of 0.28. In all three examples, the original DRC is reasonably in line with the expected DRC produced by the simulation.

Thus we see that comparative advantage estimates as traditionally reported represent but one point of a broader distribution. Such an analysis is helpful in interpreting the robustness of the result, thereby helping to nuance the policy recommendations which usually ensue from such an analysis of competitiveness. Graphs of the DRC distributions are presented below.

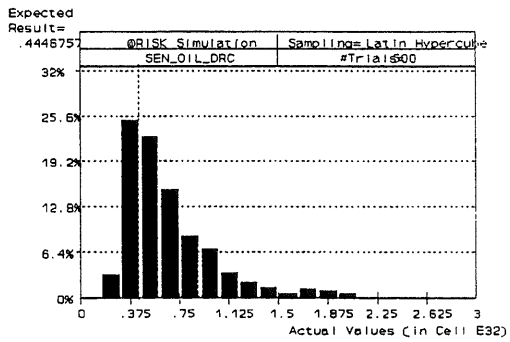
[20] This analysis is carried out using @RISK, an add-in package that works with Lotus 1-2-3.



Rice DRC Simulation



Cotton DRC Simulation



Groundnut Oil DRC Simulation

Comparison of Economic Competitiveness Analysis with Actual Production and Trade Patterns

This analysis has clearly shown that a number of producing regions in the western subregion have the economic potential to trade competitively across national borders. Under a non-distorted policy environment, rice and coarse grain cereals would probably flow eastward from the Middle and Upper Senegal River Valley and Upper Guinea into eastern Mali (and probably northward into Mauritania, though this has not been analyzed) and southward from southern Mali into northern Ivory Coast. Imported grain would satisfy much of consumer demand in coastal urban areas. Malian groundnut production might flow to Senegal for processing.

Yet in many instances the actual structure of production and trade within the region does not follow this pattern of comparative advantage. Instead, lack of integration of trade, exchange

rate, and agricultural pricing policies within the zone has created an incentive structure that encourages duplication of efforts and rent-seeking behavior.

For example, IRAM's analysis clearly suggests that there are serious distortions in the market for cereals within the subregion. Each country has historically established a distinct level of rice prices that reconciles the interests of its own producers, consumers, and government budget (Hibou, *Policies*). Compared with an international price of about 75 CFAF/kg (CIF West Africa), equivalent to an FOB Thailand price for 35% brokens of about $210/ton, the countries in the subregion have widely differing domestic producer and consumer prices.[21]

In Mali, a long process of reform in the cereals subsector has moved consumer prices for rice steadily upwards from relatively low levels. By 1990 an effective embargo on legal rice imports resulted in consumer prices in the 180-220 CFAF/kg range. In Senegal, rice prices to consumers have been maintained at somewhat lower levels -- about 130 CFAF/kg for broken rice -- by the operations of the Caisse de Péréquation et de Stabilisation des Prix (CPSP). In Guinea, rice is officially subject to a 10 percent rate of import duty, but de facto quantitative restrictions result in a price to consumers of 125-145 CFAF/kg (350 FG/kg); the equivalent of this at the border is 50 to 80 percent higher than the CIF price.[22] In the Gambia, the price of imported rice to consumers is about 100 CFAF/kg, although officially only a 10 percent tariff is applied to world prices. It is clear from these price comparisons that the flow of re-exported rice from the Gambia to Senegal, and possibly from Guinea to Mali, is due to some combination of exchange rate disequilibrium and a protective trade policy in Mali and Senegal that is only partially effective against cross-border trade.

The effect of these distortions is to divert resources from productive use into rent-seeking activities directed towards circumventing the barriers to trade. At the same time, there is also misallocation of resources resulting from the market price for rice differing from its opportunity cost. This difference is reflected in Table 2.12 in the line "non-tariff barriers," which represents the incentive to engage in rent-seeking activity.[23]

Table 2.12 outlines the marketing cost and price structure for rice imports (with all prices expressed in CFAF in terms of 35 percent brokens) into Senegal, Mali, Guinea, and the Gambia assuming both official and free trade equilibrium exchange rates. Rice being imported into

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[21] The rice produced in or imported into the Gambia and Mali is about 35 percent broken. This is sold at a world market price that is about 20 percent higher than 100 percent broken rice imported into Senegal, although the price differential within the region narrows to 10 percent in some places. Rice produced in Guinea, on the other hand, commands a premium over 35 percent brokens.

[22] This price seems high, compared with a series of imported rice prices in Conakry which ranged from 137 to 315 FG/kg in 1988 and early 1989 (nominal prices), indicating great variability. Cited in AIRD, *Agricultural Sector Assessment: Republic of Guinea*, prepared for USAID/Conakry, December 1989.

[23] Some of this is actually paid to secure preferential access and some of this equals the rent received by those with preferential access to the goods.

Guinea and the Gambia is assumed to be re-exported to Mali and Senegal respectively. Since prices in Guinea and the Gambia are expressed here in CFA francs, a 50 percent devaluation is applied to Guinea and a 70 percent devaluation is applied to the Gambia to account for the difference between the official and equilibrium exchange rates in Mali and Senegal, respectively.

Table 2.12: MARKETING COST AND PRICE STRUCTURE FOR RICE IMPORTS, 1990 (CFAF/kg)

	Senegal		Mali		Guinea/Mali		Gamb/Seneg	
	Offic	Equil	Offic	Equil	Offic	Equil	Offic	Equil
CIF Price	75	128	75	113	75	113	75	128
Tariff	11	0	0	0	8	0	8	0
Non-tariff barriers (1)	36	0	81	0	61	0	27	0
Port, handling, misc.costs, etc.(2)	11	11	11	11	11	11	11	11
Transport	0	0	23	23	35	35	12	12
Wholesale Price	133	139	190	147	190	159	133	151
Margins	10	10	10	10	10	10	10	10
Retail Price	143	149	200	157	200	169	143	161
Assumptions:								
CIF price in $/ton	273	273	273	273	273	273	273	273
100%-to-35% price diff (3)		10%						
Overvaluation factor		70%		50%		50%		70%
Exchange rate (CFAF/$)	275	467.5	275	412.5	275	412.5	275	467.5
Tariff rate	15%	0	0	0	10%	0	10%	0

Source: Stryker and Salinger, *AIRD Scenarios*

Notes: (1) Calculated as a residual after accounting for the CIF price, the tariff, port/handling/miscellaneous charges, transportation costs, and retail margins.

(2) Includes cost of enforcement of customs codes & procedures, standardization and quality norms, etc.

(3) From Malian market observations

It is evident from Table 2.12 that protective trade policy (including tariffs and non-tariff barriers) is more important than overvaluation in influencing domestic prices in Mali. If the exchange rate were adjusted to its equilibrium rate and trade barriers were eliminated, the average retail price in Mali in 1990 would be 43 CFAF/kg less than the actual market price. This implies that consumers are being taxed and producers are being subsidized by the combination of exchange rate and trade policy. By using quantitative restrictions instead of tariff policy, however, the Malian government budget does not derive any direct revenue benefit from this protection.

In Senegal, the combination of tariff and non-tariff barriers by and large compensates for the CFAF overvaluation. Under an equilibrium exchange rate scenario with the elimination of

trade distortions, consumers would pay approximately the same price for rice.[24] At the official exchange rate, the government of Senegal receives substantial tax revenue from this policy (11.25 CFAF/kg imported, or nearly 4 billion CFAF total, given an average import level of 340,000 tons), which is used in part to provide producers with additional subsidies.

Also of interest is the effect of these distortions on the pattern of trade. Non-tariff barriers to trade constitute a large part of the cost of imports going into Mali and Senegal. For imports flowing through Dakar, most of the premium due to these barriers is paid to the Caisse de Peréquation et de Stabilisation des Prix. Elsewhere, much of the premium is lost to rent-seeking activity designed to get access to scarce imports or to evade legal import channels. This rent-seeking is especially important for imports coming through Guinea and the Gambia. With illegal reexports amounting to approximately 100,000 tons per year,[25] over 4 billion CFA francs may be lost every year to rent-seeking activity in the sub-region.[26]

Similar distortions in cotton and groundnut markets exist across the region. The official producer price for first quality seed cotton is 85 CFAF/kg in Mali from CMDT, yet 115 CFAF/kg is paid across the southern border in Côte d'Ivoire by CIDT and 100 CFAF/kg across the western border in Senegal by SODEFITEX. Guinean producers are paid 135 FG/kg by CFDT (or approximately the same price as in Senegal, calculated at the official exchange rate). Regional trade in seed cotton is banned by the individual countries.

Malian groundnut producers receive about 40 CFAF/kg for unshelled groundnuts from the Opération de Développement Intégré des Produits Arachidiers et Vivriers (ODIPAC), the state regional development agency responsible for crop production and marketing in the western part of the country. Their counterparts in Senegal receive 70 CFAF/kg for unshelled groundnuts destined for oil production and as much as 105 CFAF/kg for unshelled confectionary groundnuts.

Less is known about unofficial trade flows of these commodities within the region. However, given that the domestic markets for cash crops are normally much more highly structured, with input availability frequently linked to the official sale of output to the parastatal, it is less obvious that unofficial trade is active in these markets. This, however, is conditioned by the ability of the parastatal marketing agencies to deliver. During most of the 1980s, for example, when the Ghanaian COCOBOD was in financial crisis and therefore unable to offer attractive output prices let alone administer input subsidies, much of the Ghanaian cocoa harvest found its way across the borders into neighboring Côte d'Ivoire and, probably to a lesser extent,

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[24] A 50% devaluation of the Senegalese CFAF would imply a savings to consumers under the equilibrium exchange rate scenario of 9 CFAF/kg.

[25] INRA-UNB-IRAM, *Synthesis*, p.60.

[26] Represents average non-tariff barriers (Guinea to Mali and Gambia to Senegal) times 100,000 tons.

Togo. More recently, as the Ivoirian economy has undergone its own financial crisis, the reverse trend has probably been true.

This assessment of the western subregion's agricultural economy has highlighted a number of important characteristics. Due to a combination of falling international commodity prices, increasing overvaluation of the CFA franc, and uncoordinated trade and pricing policies, resources are not being allocated optimally from an economic perspective. Each country currently views economic growth and food security in a national context with little regard for regional reliance. One result is a multiplication of production efforts across countries, which in many cases makes inefficient use of scarce domestic resources. Another result is the diversion of resources into wasteful rent-seeking behaviors aimed at circumventing existing policies.

Research from INRA-IRAM-UNB and AIRD to date has identified many elements underlying the lack of regional trade integration. In the next section, alternative policy reform scenarios are explored which might contribute to eliminating this fragmentation of the regional market.

Alternative Cereals Policy Reform Scenarios

Several papers have been prepared by the INRA-IRAM-UNB and AIRD teams on alternative policy reform scenarios to promote regional economic integration of the cereals market in the western subregion.[27] Coussy and Hibou (*IRAM Scenarios*) examine four different kinds of economic policy reform and sketch out the effects each would have on prices, production patterns, welfare, and the balance of payments. In addition, they attempt to anticipate unexpected "perverse" effects of each scenario. They specifically analyze the following alternatives: (1) complete economic liberalization, both within the zone and with regard to external markets; (2) some form of border protection around the zone; (3) currency devaluation; and (4) a reduction in external aid flows. Each set of outcomes is analyzed individually and compared, and the effects of possible combinations are explored.

Following a joint INRA-IRAM-UNB/AIRD working session held in Boston in February 1991, AIRD pursued a narrower scenarios analysis, focusing only on those policy reform options deemed most likely to be implemented (*AIRD Scenarios*). In addition, the scenarios only examine reforms necessary to eliminate the squandering of resources through rent-seeking, which results from the rice re-export trade between the Gambia and Senegal and between Guinea and Mali. The scenarios are defined by various combinations of tariff and exchange rate movements.

The specific options explored are: (1) maintenance of the official CFA franc parity with Senegal and Mali adjusting domestic prices via changes in tariff levels; (2) maintenance of the

[27] See footnote 8 for citations.

official CFA franc parity with the Gambia and Guinea adjusting domestic prices via changes in tariff levels; (3) 50% devaluation of the CFA franc with Mali adjusting domestic prices via a change in tariff levels; (4) 25% devaluation of the CFA franc with Mali, the Gambia, and Guinea adjusting domestic prices via changes in tariff levels.

The AIRD exercise provides interesting insights into the political economy of regional integration. As the base case shows (see Table 2.12), as long as the CFA countries do not adjust their domestic pricing or trade policies, and do not exercise exchange rate adjustment as a policy tool, re-exports of rice will continue to be profitable even after taking high intraregional transport costs into account. A rent of 27 CFAF is earned on every kilo of rice re-exported from the Gambia into Senegal, while 61 CFAF are earned on every kilo of rice transiting through Guinea to Mali. The value of non-tariff barriers is very high in Mali (81 CFAF/kg) and significant in Senegal (36 CFAF/kg).

Scenario 1 assumes that prices in the region will be realigned according to current levels in the Gambia and Guinea, taking regional transport costs into account. According to this scenario, retail prices would decline by 19% in Senegal and by 31% in Mali. Tariff revenue would rise nonetheless in Senegal and Mali, since the imposition of a higher tariff than the current official rate would generate more revenue, assuming that import levels remain constant.

All three other scenarios assume that the retail price level in Senegal is the exogenous variable, with some combination of tariff and exchange rate reform required in each of the other three countries. Assuming no change in the CFA franc parity, tariffs would have to be set at 63% in Senegal and Mali, and 47% in the Gambia and Guinea (scenario 2). Thus the Malian price would simply reflect the cost of transporting rice from Senegal. Prices in the Gambia and Guinea would be set at levels such that re-export of rice to Senegal and Mali would no longer be profitable. Domestic prices would rise significantly in the Gambia and Guinea (26%) as the burden of adjustment from trade integration shifted to these countries. All four countries would enjoy higher government revenues, however, as complete tarification of border intervention (i.e. the use of tariff protection at the border rather than quantitative regulation to affect import demand) would become the rule. On the other hand, with some measure of devaluation of the CFA franc, either 50% (scenario 3) or 25% (scenario 4), tariffs would adjust residually, forcing less of an adjustment burden on the Gambia and Guinea.

The base case clearly represents one version of regionally integrated trade. Cereals, notably rice, <u>are</u> flowing across national borders to satisfy demand. However, this re-export trade does <u>not</u> represent an efficient use of resources. Alternatively, if trade, pricing, and exchange rate policies were to be harmonized throughout the region, a political decision would have to be made regarding trade-offs between efficiency, preservation of consumer purchasing power, protection of producers, and net government budget effects.

If a regional protected cereals trade zone is to be established to maintain the current price level in Senegal, both the Gambia and Guinea, countries whose economies have already been liberalized, would see dramatic rises in their consumer rice prices, a result which is likely to be

politically untenable. On the other hand, reducing protection in Senegal and Mali to levels which currently exist in the Gambia and Guinea without any concommitant exchange rate adjustment would open the former countries to a flood of imports and would undermine current attempts to subsidize domestic production. Only with substantial devaluation of the CFA franc would Senegal and Mali be able to "safely" reduce their tariffs to levels matching those in neighboring countries. In virtually all cases, however, the net government budget effect of 100% tarification of border measures is positive, as governments -- and not private individuals -- capture the full effect of border policy. Only in the case of a 50% CFA franc devaluation plus 8% tariff protection in Senegal does Senegal lose tariff revenue compared with what it is currently generating.

The scenario exercise has focused thus far on the limited perspective of protection of rice production in the CFA countries. The more general, more important, question to be posed is what kind of regionally harmonized set of policies (trade, investment, pricing, and exchange rate) are necessary to promote broader-based growth in the agricultural sector, not to mention the economy as a whole, within the region.

IV. ECONOMIC GROWTH AND FOOD SECURITY IN THE SAHEL: THE ROLE OF ECONOMIC INTEGRATION

The evolution of the Sahelian economies has undergone substantial change over the past three decades. After a period of substantial growth following independence, a combination of drought and bad policy has resulted in economic stagnation, and in many cases a decline in per capita income. This has been accompanied by a marked deterioration in export earnings, a reduction in per capita food production, and a rise in food imports from commercial sources and food aid.

Although improved rainfall during the past six years has helped to increase food production, economic growth has been slow. At the same time, accelerating population growth in the face of stagnant per capita income is exacerbating problems of poverty and malnutrition. If the Sahelian countries are ever to escape this trap, a vision of long-term growth and development must be elaborated that will focus the energies of donors and host countries on increasing incomes at the same time that food security is enhanced.

This section examines several long-term regional development strategies, evaluates these in light of past experience in Africa and the rest of the world, and offers suggestions regarding the best strategy to pursue and the kinds of policies that are most likely to succeed in raising per capita income and assuring food security.

Food Self-Sufficiency versus Comparative Advantage

The debate in the Sahel over food self-sufficiency versus the exploitation of comparative advantage has raged for at least two decades. By now, however, the record of experience suggests that the single-minded pursuit of food self-sufficiency is costly, that this goal is unlikely to be achieved, and that it often may be inimical to economic growth.

Food self-sufficiency increased greatly in importance as an objective following the drought of 1972-74 and the rise in world market prices for food that occurred at about the same time. Not only was it costly to import food from the world market, when it was needed in the Sahel, but also it became increasingly difficult to obtain food aid. As a result, both donors and host countries emphasized enhancing the capacity of the Sahelian countries to produce more of their own food needs under secure conditions. This implied investment in irrigation and improving rainfed food production in areas that were often relatively marginal.

By and large, most irrigation projects in the Sahel have been disasters. This is not surprising given the difficulty of implementing such projects in semi-arid areas, in general, and

in the Sahel, in particular.[28] Among the problems encountered have been low yields, poor water delivery, high capital and recurrent costs, inadequate maintenance and repair of irrigation systems and equipment, lack of motivation to grow a dry season crop, and siltation of dams and irrigation canals. Yet the heavy investment that has been made in irrigation and river basin management thus far has resulted in inordinate efforts to make these projects work at the expense of more effective activities to promote economic growth.

Efforts to improve rainfed cultivation in marginal areas have failed equally as badly and have served to encourage people to remain in these areas, damaging vegetation and soils, when a more effective policy would have been to induce them to emigrate to more productive areas or to enter lines of endeavor that would put less stress on the environment. At the same time, projects in marginal areas have been very expensive in relation to the benefits achieved. This has been because of the absence of a cash activity that could be used to sustain recurrent costs, the riskiness associated with drought, the lack of a viable technical package, and the high cost of maintaining project personnel and administration in inaccessible areas.

The lack of success of the strategy to reduce reliance on food imports is best illustrated by the changes in the food self-sufficiency ratio (local production/total availability) that occurred from the mid-1960s (1965-67) to the late 1980s (1986-88). In not one single Sahelian country did this ratio increase. In many, especially those for which rice imports are an important component of food supply, it fell markedly, e.g., from 83% to 47% in the Gambia, from 69% to 39% in Mauritania, from 80% to 58% in Senegal. In other countries that consume mostly coarse grains, the self-sufficiency ratio for total cereals fell much less, but that for rice declined to a similar degree.

In contrast, the record of cotton production in a few countries is one of notable success. Burkina Faso, for example, went from 3,000 tons of cotton lint production in 1965 to 71,000 tons in 1990. Mali had a similar experience, increasing production from 8,500 tons in 1965 to 111,000 tons in 1990. Not only did this expansion increase the incomes of farmers, raise the tax revenues of governments, and augment earnings of foreign exchange from cotton production and exports, but it also helped to increase the production of cereals by providing the capital and cash income that farmers require to purchase intermediate inputs such as fertilizers.[29] Expansion of cotton production has, in turn, contributed to overall economic development

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[28] For a discussion of these problems, see J. Dirck Stryker, *et al*, *Investments in Large Scale Infrastructure: Irrigation and River Management in the Sahel*, (Fletcher School of Law and Diplomacy, Tufts University and Food Research Institute, Stanford University, January 1981).

[29] Staatz and Wohl have emphasized the extent to which "the green revolution in cotton and, to a lesser effect, the expansion of peanut cultivation have helped to stimulate food crop production" in the Sahel by financing the acquisition of inputs and the development of market infrastructure. Most of the surplus cereals producers in southern Mali, for example, are also heavily involved in the production of cotton. John M. Staatz and Jennifer B. Wohl, "The Evolution of Food Self-Sufficiency Policies in West Africa" in Fred J. Ruppel and Earl D. Kellog, eds., *National and Regional Self-Sufficiency Goals; Implications for International Agriculture*, (Boulder: Lynne Rienner, 1991), p.79.

through forward linkages involving marketing and processing, backward linkages to blacksmithing and the production of other intermediate goods and services, and final demand linkages engendered by increased farmer incomes.

Although the cotton sub-sector has been an important vehicle for expanding exports and rural incomes, cultivation of this crop is somewhat restricted in the Sahel by the need for adequate rainfall.[30] In addition, it would be desirable to avoid excessive dependence on a single crop subject to world price fluctuations. The question arises, therefore, as to whether there are not other activities in which the Sahelian countries have a comparative advantage, perhaps in the regional market.

Future Comparative Advantage in the Sahel

Although studies have not yet been undertaken to identify all areas of future comparative advantage for the Sahelian countries, enough has been done to permit at least a preliminary assessment, especially if one also looks at experience in other areas of the world. Broadly speaking, it appears that the Sahelian countries have two areas in which they have a growing comparative advantage. One is in the production of agricultural and livestock products for the West African market; the other is in the production of labor-intensive agricultural and manufactured goods for export to the rest of the world.

It is the interior of West Africa, especially, that has a comparative advantage in agricultural and livestock production for the region as a whole. Especially important are the coastal markets. Even today there is substantial excess demand for vegetable oils and meat,[31] which the Sahelian countries could profitably fill in competition with imports if account is taken of the overvaluation of the CFA franc.[32] Should growth in the coastal markets be restored to levels that existed during the 1960s and, to a lesser extent, the 1970s, there would be a substantial increase in demand for coarse grain cereals, rice, vegetable oils, cotton, meat, and other livestock products -- all goods in which the Sahelian countries have an increasing

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[30] This does not explain, however, the stagnation that has occurred in cotton production in Chad and Senegal, each of which has large areas where rainfall is more than adequate.

[31] FAO data suggest that there was excess demand for livestock products in West Africa in 1988 equal to 49,000 tons of beef meat and 31,000 tons of poultry meat.

[32] The extent of this overvaluation has been estimated for the Ivory Coast and Senegal as being in excess of 50%. Salinger and Stryker, *Exchange Rate Policy*. In the absence of devaluation, a case could be made for a preferential tariff favoring other CFA franc countries, but only as a second-best policy.

comparative advantage as the coastal countries continue to specialize in tree crops, forest products, and manufactured goods.[33]

The other area of potential comparative advantage in the Sahel is products that can be exported to markets outside of West Africa. The most important of these are horticultural products and labor-intensive manufactured goods. Burkina Faso, Mali, and Senegal are already exporting irrigated fruits and vegetables despite the overvaluation of the CFA franc. If the franc were to be substantially devalued, these exports could doubtless be increased many times. This is because of the natural comparative advantage that the Sahel has with its abundant sunshine and relatively inexpensive labor.

It is often said that Africa must develop its agriculture before it can proceed along the path taken by so many Asian countries -- expanding production and exports of labor-intensive manufactured goods. This ignores the dynamics of growth in the third world, however, and blocks a potentially important and, in some countries, vital path to development. Africa's comparative advantage in labor-intensive activities is increasing vis-à-vis Asia's for several reasons. First, rates of population growth are higher, resulting in a rapidly growing labor force. Second, poor economic performance implies that real per capita incomes and wages have been relatively stagnant or even declining in Africa as compared with Asia, where economic growth has been much more pronounced. As a result, African labor-intensive exports should increasingly be able to compete with those of Asia.

This is particularly important in countries such as Senegal and the Gambia, where there is limited potential for the expansion of agriculture and where there already exists some industry. But even the countries such as Mali, which are less constrained on the supply side, must look forward to the day when agriculture can no longer be the advancing edge of economic growth. In other countries, such as Niger and Mauritania, that day has already been reached, and a reorientation of development efforts towards the production and export of labor-intensive manufactures is urgently needed. With rapidly growing population, the only other choice is emigration.

Expansion of export-oriented labor-intensive industry in some of the Sahelian countries would create a more important regional market within the Sahel. This would provide additional linkages to the Sahelian countries such as Mali that could to supply this market because of their greater agricultural resources.

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[33] A more quantitative analysis of the parameters of this potential market will be explored by AIRD in the near future. A regional trade model, simulating alternative agricultural supply and demand scenarios for the Sahel and the coastal countries will be developed to test this thesis.

Realization of the Potential for Growth

In order for the potential of the Sahelian countries for economic growth to be realized, there are a number of important constraints that must be overcome. Among the more important of these are (1) a reduction or elimination of barriers to intraregional trade, (2) either devaluation of the CFA franc or the establishment of appropriate second-best policies that will not inhibit intraregional trade, (3) investment in transportation and communications infrastructure, (4) liberalization of investment regimes, and (5) establishment of a climate oriented towards export expansion and collaboration between foreign and domestic firms interested in this goal.

Barriers to Trade

The widespread prevalence of major barriers to intraregional trade has been extensively documented by the Regional Economic Integration in West Africa Study.[34] These barriers lead to large losses resulting from efforts by the private traders to evade them and from the uncertainty that they introduce into cross-border trade. They also distort trade flows, which reduces the gains that would otherwise result from free trade.

As stated earlier, the barriers often exist because of inconsistent policies in neighboring countries that give rise to cross-border trade that is not in accordance with the pattern of comparative advantage.[35] One of the most important of these has been the overvaluation of the CFA franc. This has led to rice that has been imported into the Gambia and Guinea, for example, being re-exported to Mali and Senegal, whose markets are heavily protected against imports made artificially cheap by the overvalued currency. As another example, the overvaluation of the CFA franc, coupled with numerous informal barriers to the movement of animals from Mali to Côte d'Ivoire, has seriously penalized Malian livestock exports relative to those of overseas meat suppliers. The same may be said of Mauritanian livestock exports to Senegal.

It is difficult to see how the poorer countries of West Africa can profit from the development of regional markets for meat, cereals, vegetable oils, and other products unless these barriers are removed. This is beginning to be recognized, and some initial steps have been taken in this direction (see below), but the problem is made very difficult by the fact that many of the barriers are informal rather than formal, and thus cannot be legislated away. What is required is the elimination of all controls along major marketing routes other than those absolutely required for public safety. In addition, all tariffs and quantity controls on

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[34] INRA-IRAM-UNB, *Synthesis*. In a separate study of livestock, similar barriers have been reported in Nicholas Kulibaba and John S. Holtzman, *Livestock Marketing and Trade in the Mali/Burkina Faso - Côte d'Ivoire Corridor*, (Washington: Abt Associates, 1990).

[35] The comparative advantage of different countries in the region in furnishing agricultural products to the regional market has been studied in Barry, *Comparative Advantage*.

intraregional trade should be eliminated, and official procedures should be made extremely simple, presenting little, if any, opportunity for bribery and corruption.

Overvaluation of the CFA Franc

As explained earlier, elimination of intraregional trade barriers is complicated by the overvaluation of the CFA franc. Because of this overvaluation, the CFA franc zone countries are forced to erect high protective barriers to prevent their markets from being flooded with imports. The obvious solution would be for them to devalue by 50% or more in order to move the exchange rate to equilibrium. This has implications, however, that obviously go beyond the question of encouraging intraregional trade -- for example, the fear that this will result in a large outflow of capital.

But in the absence of devaluation, a free market will be difficult to create without asking the non-CFA franc countries, most of whose currencies are already more or less in equilibrium, to raise their tariffs vis-à-vis third countries to very high levels -- a policy change that would inflict great hardship on their consumers and dramatically distort the pattern of resource allocation away from their comparative advantage.

Even more dangerous, high tariff protection for the region would result in a serious bias against exports.[36] The policy that has done the most damage to economies all over the world and that has been most inimical to economic growth and development has been maintenance of a highly overvalued exchange rate supported by high protective barriers to trade. This would be particularly damaging to the growth of nontraditional exports, which is especially needed if the Sahelian countries are ever to overcome their relatively poor natural resource base.

Transportation and Communications Infrastructure

The transportation network that exists in West Africa today is oriented primarily towards trade with third countries. If intraregional trade is to expand, therefore, substantial investments will have to be made in connecting areas of potential production with the major centers of consumption in ways that cross over national boundaries. In addition, telecommunications infrastructure will have to be improved, not only to link areas of the region internally but also to improve communications with overseas markets. This latter goal is vital to assure timely delivery if the region is going to expand its exports of nontraditional products.

Investment Regimes

Most of the countries in West Africa have investment codes which provide tax and other benefits to firms that invest locally in certain subsectors designated as of priority interest to each

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[36] Anne O. Krueger, Maurice Schiff, and Alberto Valdez, "Agricultural Incentives in Developing Countries: Measuring the Effect of Sectoral and Economywide Policies," *World Bank Economic Review*, 2(3), September 1988, pp. 255-71.

country concerned. These investment codes often conflict with the more general pattern of incentives that exists in the form of tax laws, labor laws, investment regulations, and the like. Furthermore, they tend to be somewhat biased in favor of investors from the industrial countries, many of whom are interested in producing principally for the local market.

In order to make investment incentives more neutral and less discretionary, it would be highly desirable to move away from specific incentives oriented towards sectors deemed to be priority by the government and towards broader incentives that enable the investor to chose the activities that are most profitable. Of particular importance is the need to avoid any bias against exports, including that of an overvalued exchange rate. It would also be highly desirable to ensure that there is no bias against investors coming from other countries within the region. This would help to overcome the problem of small market size of individual nations and to reap the economies of scale made possible by production for the regional market.[37]

Foreign-Sahelian Private Sector Collaboration in Export Activities

A recent study by the World Bank and USAID suggests that the most important constraint on the expansion of nontraditional exports is the absence of catalytic links with foreign private firms that could provide access to the world market network, the capacity to package exports, and technical, marketing, and managerial know-how.[38] This type of collaboration appears to arise most often among small- and medium-size firms, which are more likely to be open to export opportunities than are larger firms, which are oriented principally towards the domestic market.[39] The gap that exists between the demand for and the supply of these export-oriented foreign firms appears to be influenced by at least two factors amenable to policy change: (1) lack of information and (2) restrictive policies on export-oriented foreign collaboration.

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[37] This is the major area in which some degree of regional integration seems possible in eastern and southern Africa. World Bank, *Intraregional Trade in Sub-Saharan Africa*, (Washington: World Bank (Report No. 7685-AFR), May 23, 1991).

[38] Of lesser importance was inadequate physical trade infrastructure and the failure of governments to implement export policies effectively. World Bank, Industry and Energy Department, and USAID, Bureau for Africa, *Building a Competitive Edge in Sub-Saharan African Countries; the Catalytic Role of Foreign and Domestic Enterprise Collaboration in Export Activities*, (Washington: World Bank and USAID (draft), December 10, 1991).

[39] The dynamics of the small-scale, informal sector has been emphasized by Hernando De Soto, *The Other Path; The Invisible Revolution in the Third World*, (New York: Harper & Row, 1989) and Douglass C. North, *Institutions, Institutional Change and Economic Performance*, (Cambridge: Cambridge University Press, 1990). This sector has few contacts with the outside world, however, and often faces numerous obstacles to moving into export markets unless there is a catalytic foreign firm that can provide these linkages.

Objections to a Strategy Based on Comparative Advantage

There are two frequent objections to the Sahelian countries pursuing a strategy of development based on comparative advantage. One is that this might involve some reduction in food security. The other, from a parochial U.S. point of view, is that the export activities of the Sahelian countries might compete with American interests, especially in agriculture. Neither of these objections is well founded.

Food Security

The argument that encouragement of cash crop and livestock production along the lines of comparative advantage might jeopardize food security is based principally on the competition that this would supposedly offer to food crop production. But there is abundant evidence by now that the most important way that food security can be enhanced is through increases in household income. Study after study in West Africa and elsewhere has shown that the problem of food security is not one of food availability but of entitlement.[40] Production of those goods and services in which the Sahelian countries have their greatest comparative advantage does most to increase incomes, and therefore to improve food security.

The development of the livestock sector in the Sahelian countries has an additional advantage. At present, the prices of coarse grains are subject to large fluctuations from year to year as a result of variations in rainfall, and therefore in yields. As the livestock sector develops, however, an increasing proportion of coarse grain production will be fed to animals. The sector will therefore become an increasingly important buffer -- helping to stabilize grain prices and to increase the demand for coarse grains in good years, when farmers might otherwise become discouraged, making less food available in bad years.

Although the exploitation of comparative advantage may imply a strategy opposed to that of food self-sufficiency, this does not imply that food security will be decreased. The most important single factor affecting the availability of food in the Sahel is fluctuations in production due to variations in rainfall. By comparison, imports are a much more stable source of food. Furthermore, the world market for rice, the Sahelian countries' most important food import, is characterized by fundamental world demand and supply conditions that make this an extremely low priced source of staple food. Although this does not imply that all the Sahelians should be encouraged to shift to consumption of rice, it does suggest that efforts to become self-sufficient in rice through high-cost projects and protective trade policies, most of which are not very effective in any case, does not make sense. Far better to produce those products that can be exported at a good price and to import cheap food to supplement locally grown coarse grains and rice that it can profitably be grown locally.

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[40] The most pathbreaking of these studies is Amartya Sen, *Poverty and Famines*, Oxford: Clarendon Press, 1981. More recent evidence is cited extensively in Ruppel and Kellog, *National and Regional Self-Sufficiency Goals....*

Competition with U.S. Agriculture

One of the reasons why USAID has been reluctant to fund projects that are designed to promote cash crop agriculture is because these crops are thought, in some cases, to compete with U.S. agriculture, for example with cotton and vegetable oils. The evidence suggests, however, that growth of farm income in developing countries actually increases, rather than decreases, the demand for U.S. agricultural exports. This occurs, especially if the income growth is concentrated among small farmers, because of a relatively high income elasticity of demand for agricultural products for this segment of the population. Furthermore, growth of rural income is likely to spread to other sectors through increased demand for agricultural inputs and consumer goods. This promotes broad-based development, which further increases the demand for agricultural, as well as industrial, imports.[41]

Outward versus Inward Orientation

One of the major issues that has persisted over the last two decades has been whether the Sahelian countries, particularly those belonging to the West Africa Monetary Union (WAMU), should pursue an inward-looking development strategy based on import-substitution behind high trade barriers or an outward-oriented strategy designed to encourage exports through minimum trade protection and a realistic exchange rate. The inward-looking strategy has received strong encouragement from the French in recent years because of the overvaluation of the CFA franc and the reluctance to devalue based on the fear of destroying the Monetary Union. The World Bank, on the other hand, has supported the outward-oriented, minimal protection approach, though it has been forced to stay clear of the exchange rate issue because of the division of responsibilities established between it and the International Monetary Fund.

The inward-looking strategy has been modified recently to encompass protection around an enlarged regional market. This was given impetus for the cereals sector at the Mindelo Conference in 1986, and the idea was extended to other agricultural products at Lomé in 1989. The market would comprise not only the CFA franc zone countries, but also other countries in the West African Region. This is essential because of the cross-border trade described earlier.

Although there has been some agreement on the idea of a regional agricultural market, there is little accord on what the level of protection should be. The countries outside the CFA franc zone, many of which have already devalued their currencies, want to keep tariffs relatively low; those within the zone, confronted by the potential invasion of cheap imports resulting from their overvalued currency, want to maintain high levels of trade protection.

The French have been pushing recently less for internal trade liberalization and a common external tariff than for the transformation of the franc zone into an economic community with common rules and regulations regarding insurance, banking, legal systems,

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[41] Earl D. Kellogg and Fred J. Ruppel, "An Introduction to Agricultural Self-Sufficiency Issues", in Kellog and Ruppel, *National and Regional Self-Sufficiency Goals...*, pp.5-6.

social security institutions, and public sector controls.[42] Although countries outside the franc zone would not necessarily be excluded from this community, clearly the common heritage of countries within the zone would facilitate the transformation process. This raises important questions about the extent to which the French will support other efforts at regional integration.

Of great concern is the possibility that, through efforts to promote economic integration in West Africa, a policy environment will be established which will frustrate efforts towards long-term growth and development in the Sahel. Experience all over the world has conclusively demonstrated the failure of an inward-oriented strategy based on high trade barriers and an overvalued exchange rate. Integrating the West African market does not change this fundamental conclusion. Even if all the markets of West Africa were fully integrated, their combined GDP would only be about $63 billion ($33 billion without Nigeria). This is less than the GDP of Denmark ($91 billion). Furthermore, even if trade, exchange rate, and other policies in West Africa were integrated, the market would still be highly imperfect because of the long distances involved and the poor transportation infrastructure that exists in many areas. The advantages of regional integration, therefore, do not lie in producing for the West African market alone, but in linking interior regions such as the Sahel with the areas that are growing because of their production for export to the world market.

[42] Elliot Berg, *Strategies for West African Economic Integration*, pp. 14-15.

V. AGENDA FOR THE FUTURE

Medium-to-Long Term Perspective for the Sahel

The vision of economic growth presented in this document is predicated on a resurgence of activity not just within the Sahel but throughout West Africa. Several coastal economies are already well positioned for this to occur, most notably Ghana and Nigeria. A modest commitment to economic liberalization has also been made in Guinea, which should bode well for competitive exploitation of its rich natural resource base. Should the CFA franc zone countries be able to overcome their exchange rate constraint, outward-oriented industries could become reinvigorated in such places as Côte d'Ivoire and Senegal.

Growth of activity in these areas would generate increased demand for two of the Sahel's most abundant resources: labor and foodstuffs. As during the 1960s and 70s, Sahelians would migrate toward manufacturing and processing industries along the coast and into the accompanying service sectors. Those remaining behind would produce coarse grains, some rice, livestock products, edible oils, and a range of horticultural commodities for export to the coastal areas. An increasingly wider range of specialty commodities (spices, essential oils, cut flowers, etc.) could become competitive for export to overseas markets.

For such a vision to succeed, policy-makers must insure that uncompetitive industries are not unduly protected from international markets. This would indirectly penalize activities that are more economically competitive, by shifting resources to the protected industries. Exchange rates should be set at equilibrium levels so that wages within the CFA zone can be competitive with those in neighboring countries. Compensatory tariff structures, a second-best alternative to devaluation, would further penalize otherwise competitive industries. The lack of regional policy coordination increases the opportunities and incentives for rent-seeking behavior, away from economically viable investments.

Operational Implications for USAID's Sahel Development Program

Policy Reforms to Improve Market Competitiveness

Under the directive of the Development Fund for Africa (DFA) and the AID Administrator, the regional AID mission for the Sahel (AID/SWA) has for the first time put forth a program framework and strategy statement for the Sahel Regional Program. The two broad objectives outlined in this strategy are promoting environmentally sustainable economic development and food security. Within these larger goals, two areas of great emphasis are the development of regional cooperation to further market development and an increasing need for national policy-making to be consistent with regional objectives.[43] These regional objectives

[43] AID/SWA, "Sahel Regional Strategy," October, 1992.

will have a significant impact on the long-term economic growth in the Sahel, as articulated in this paper. Yet there seems to be little coordination between AID/SWA and the bilateral missions, as there is almost no overlap in their program strategies, nor do the bilateral missions offer any plans for (or discussion of) encouraging regional integration.

In particular, the AID/SWA strategy identifies explicitly that "in the area of trade liberalization, there is no point in talking with only one state when complementary actions are required of other states if the desired changes are to brought about."[44] While AID/Niamey offers the insight that the Nigerian economy affects that of Niger, AID/Dakar is actively promoting market and trade liberalization with no mention of other countries in the region. The government of Senegal is making commitments to reform agricultural trade and marketing, notably in the promised elimination of the "perequation" on rice transport and its own rice wholesaling activities. On the other hand, the GOS still controls the price of rice through controlled imports of rice, which make up about 80% of the rice market.[45]

AID/Mali has also been supporting efforts to privatize the grain marketing system and eliminate export taxes on agricultural and livestock products. One year after the export taxes were repealed, the export procedures were simplified to further encourage trade. These reforms are part of the AID/Mali Strategic Objective to increase both the income from agricultural production and the value of agricultural exports. Last year also saw the last of the price controls eliminated, along with all quantitative trade restrictions and import/export monopolies.[46] Despite the attention being paid to encouraging trade and especially exports, there is no mention within the mission's API of any regional concerns for trade development nor of the overvaluation of the CFA franc.

Overall, the Sahel bilateral missions report significant improvements in government policies to promote reform and economic growth. Only AID/Niamey reports on the failure of the government to meet Structural Adjustment Program (SAP) targets, due in large part to the political transition that has slowed progress in all economic and social areas.[47] The removal of policy constraints on the agricultural sector has been a high priority in all the Sahel stabilization and adjustment programs, with the above-mentioned successes.

While the immediate impact of such agricultural market liberalization will be felt in domestic markets, there are also cross-border effects that AIRD has begun to analyze. As government marketing agencies withdraw from grain trading, missions are reporting an increase in private activity. IRAM's work on grain-trader networks in the western subregion has

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[44] AID/SWA, op. cit., p. 4.

[45] AID/Dakar, "FIscal Year 1992 Assessment of Program Impact: Senegal," 1992.

[46] AID/Mali, "Assessment of Program Impact, Fiscal Year 1992," 1992.

[47] AID/Niamey, "Assessment of Program Impact, Fiscal Year 1992," October, 1992.

indicated that these have a definite regional focus, suggesting that grain trade will be increasingly sensitive to relative incentives on a *regional* basis. AID missions need to be aware of the potential for increased cross-border agricultural trade in commodities other than livestock, where traditional marketing channels from the Sahel toward the coast are well known.

That the CFA country missions do not directly address regional market considerations may reflect, in part, their consideration of the exchange rate problem as an immutable constraint. However, none of the APIs available at this writing even mention the overvaluation of the CFA franc, despite their attention to trade policy reform. The regional mission, although claiming to be an advocate for "policy issues which are very difficult to address bilaterally [that]..., addressed in a regional context,...[can] become somewhat de-politicized," makes no mention of the exchange rate issue either.[48] Given that this issue will likely be addressed by the international donor community in the near future, the regional and bilateral missions ought to begin to focus on how a significant devaluation might affect the economies of the region, and especially the development of agricultural trade.

Revised Commodity Focus

As stated earlier, realignment of the exchange rate will allow economic growth in the Sahel to follow patterns of comparative advantage. To the extent that demand for particular commodities grows in the coastal areas, this will induce changes in relative incentives among commodities. These changes have direct operational implications for AID/SWA's objectives to improve food security and market development.

AID missions will want to evaluate, for example, the commodity focus of their agricultural research programs. Incentives are likely to become more attractive for tradeable grains, such as maize and rice, relative to non-tradeables, such as millet and sorghum. While the latter will continue to fill a niche in rounding out the food security of producing households, it is the production of maize and rice that is likely to become more important. Research efforts should focus on improving the productivity of these commodities.

In addition, commodities which were previously regarded as uncompetitive may no longer be so at a devalued CFA franc parity. Diversification of production into a wider range of agricultural commodities will contribute directly to improved food security. This applies particularly to the Sahelian livestock sector, whose outputs have not competed successfully with cheap European and Argentinean imports along the coast. AIRD's current study of livestock sector competitiveness in the central corridor will identify those livestock production and processing activities that should enjoy a resurgence after devaluation. AID missions across the Sahel may want to integrate these findings into their livestock programs.

Linkages between crop agriculture and livestock will also become more competitive. The extent to which Sahelian vegetable oil production (cottonseed, groundnut) can compete

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[48] AID/SWA, op. cit., p. 4.

successfully with soy and rapeseed oil imports needs to be explored. Oilseed cake by-products from these activities can be used as part of livestock fattening schemes, the economic profitability of which will also be measured by the AIRD study now underway.

Expanded Sectoral Focus

Other sectors will re-emerge to compete for donor funding. In particular, infrastructure investments will be given a second look, as commodities and labor need to be transported more efficiently both within an beyond the region. Thus, transportation, communication, and trade facilities will require additional resources to allow the region to achieve its potential.

As the Sahelian and coastal countries move along the path toward outward-oriented economic growth, regional market integration and increased trade will develop of their own accord. They will emerge as a by-product of the growth pattern envisioned here. Achievement of both objectives thus is not an end in itself, but an inevitable result of the increased levels of economic activity which will take place in the region over the medium to long term.

Supplemental Regional Integration Research Needs

To date, economic research on perspectives for regional agricultural market integration in West Africa has focused on the comparative advantage of particular production systems under alternative marketing assumptions. This analysis has identified those commodities that would be economically competitive in a liberalized economy. What is now needed is an integration of this microeconomic information with agricultural sector balance sheets to assess regional supply, demand, and net availability of groups of commodities. Supply projections will be estimated given assumptions on the potential for area expansion and yield growth. In addition, policy constraints to expanded output have been identified and the likely supply response to their elimination can be modeled. Demand projections will be made on the basis of expected population and income growth trends. This analysis will identify potential deficit and surplus areas within the western subregion that would lead to expanded regional trade. It will permit the assessment of future commodity flows in relation to existing transportation infrastructure and help identify needed investments.[49]

[49] A model of this nature has already been constructed by AIRD for this purpose in Madagascar. See AIRD, *Regional Specialization and Agricultural Growth in Madagascar*, December 1992.

Following the definition of such a regional trade model, more sophisticated analysis would integrate economic behavioral parameters such as price and income elasticities. This would yield a multi-market model of the regional agricultural economy.[50]

Over the next year, AIRD will focus its research efforts in these areas. It will also continue the study of economic comparative advantage and incentives in livestock production, processing, and trade in West Africa's central corridor.

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[50] To date, most multi-market models have been designed to examine national agricultural economies. See, for example, Avishay Braverman and Jeffrey S. Hammer, "Multimarket Analysis of Agricultural Pricing Policies in Senegal," in I Singh, L. Squire, and J. Strauss, eds. *Agricultural Household Models: Extensions, Applications, and Policy* (Baltimore: Johns Hopkins University Press, 1986); and Avishay Braverman, Jeffrey S. Hammer, and Anne Gron, "Multimarket Analysis of Agricultural Pricing Policies in an Operational Context: The Case of Cyprus," in *The World Bank Economic Review*, 1,2 (337-356).