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Ghana
Agriculture Sector Analysis

Prepared for
U.S. Agency for International Development
Accra, Ghana

Under Macroeconomics IQC
Contract No. PDC-0000-I-20-6135-00

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By
Robert R. Nathan Associates, Inc.
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LIST OF ACRONYMS

CDB	Cotton Development Board.
COCOBOD	Cocoa Marketing Board.
CPI	Consumer Price Index.
DRC	Domestic Resource Costs.
ERP	Economic Reform Program.
FAO	Food and Agricultural Organization.
GDP	Ghana(ian/Gross) National Product.
GFDC	Ghana Food Distribution Corporation.
GNPA	Ghana National Procurement Agency.
GOG	Government of Ghana.
GSC	Ghana Seed Company.
IMF	International Monetary Fund.
INCRASAT	International Institute of Crop Research for Semi-Arid Tropics.
MMB	Meat Marketing Board.
MOA	Ministry of Agriculture.
MT	Metric Ton.
NPC	Net Protection Co-efficient.
PAMSCAD	Program of Actions to Mitigate the Social Costs of Adjustment.
PTC	Pioneer Tobacco Company.
SOE	State Owned Enterprises.
SFC	State Fishing Corporation.
USAID	United States Agency for International Development.

EXECUTIVE SUMMARY

The purpose of this paper is to assess the impact of Ghana's macroeconomic and sector specific policies on agriculture. The conceptual soundness and appropriateness of the Economic Reform Program will also be evaluated in terms of Ghanaian resources, comparative advantage, and other factors. Of particular importance in the analysis are the constraints to increasing agricultural productivity. A rationale is presented for privatization and the need to restructure the economy along the lines of a private sector agriculture-led strategy focusing more on world markets. The paper includes discussion of recommended future research approaches based on supply and demand policy analysis for analyzing important Ghanaian crops including maize, rice, cotton and wheat. This paper aims to help form the basis of a USAID/Ghana private sector agricultural and export oriented development strategy consistent with the goals of the Government of Ghana and the World Bank/IMF. Recommendations for building on existing agricultural programs and initiation of agricultural program assistance are also given.

Phase I (1984-6) of the Economic Reform Program (ERP) was inaugurated in April 1983 and has successfully brought Ghana out of collapse and on the way to stability and recovery. Phase I has generally followed standard IMF/World Bank reforms and prescriptions given to other developing countries in similar predicaments. The Ghanaian program centers on monetary and fiscal policy restraint. Removing price distortions is critical to the success of the program with central importance on raising the exchange rate and lowering the relative difference between the official and parallel exchange rates. A major component of the Ghanaian program has been moving the farmgate price of controlled agricultural products closer towards their border prices, particularly raising the price of cocoa and lowering the

price of rice. The program has also reduced the price controls from 8,000 to only 8 commodities of key political and economic importance.

Phase II (1987-9) is attempting to consolidate gains made in Phase I and to restructure the economy by removing the structural factors contributing to its continued inherent instability. Because of the better track record of outward market oriented developing countries, the ERP aims to restructure the economy from import substitution to export promotion. The former relies comprehensively on government planning and parastatals. The latter allows market-determined prices to set the directions for the economy, while confining government interventions to those supporting the private sector and providing social services.

Major emphasis is being placed on agriculture because of its unique position in the economy as the (1) major contributor to Gross National Product (GDP), (2) largest employer, (3) main source of foreign exchange, and (4) largest base for tax revenues. On the demand side, a richer rural sector increases final demand for products and services of the other sectors. On the supply side, a more profitable agricultural sector provides important backward and forward linkages to the other productive sectors. The former include chemical fertilizers, poly sacks, farm implements and machinery. The latter include food processing and establishments manufacturing textiles, apparel and furniture. Moreover, the rural sector serves as a major supplier of unskilled and semi-skilled labor for the urban sector. The private sector is stressed because of its greater productivity and efficiency associated with competition.

Phase I and the early part of Phase II have had a substantial impact on the agricultural sector. Farmgate prices and rural incomes have risen. Higher paying employment opportunities are available in agriculture. More consumer items, particularly

imports, were affordable and could be purchased. Inflation dropped. Increased markets have been made available for agricultural products. Increased tax revenues and foreign exchange from greater farm export sales have financed the tires, spare parts and fuel to allow the rural infrastructure to function again.

Phases I and II have been conceptually sound and probably represent the best approach towards the stability and growth achieved by other successfully developing countries, most notably in Asia. Much of the capital infrastructure in the rural areas needs rejuvenation and development after years of neglect. In positive terms, the improved price environment, basic Ghanaian natural and human resources and long-term neglect of infrastructure has created conditions in which numerous agricultural infrastructure investments now have a much higher expected economic and social rate of return. Unlike the pre-ERP period, the profitability of agriculture now makes projects and programs economically justified under a variety of alternative scenarios. Future stabilization and development efforts will certainly be hampered by underdeveloped infrastructure unless a sustained effort is made to increase and develop these factors that stifle gains in agricultural productivity.

Parastatal domination of many areas of agricultural production, marketing, and transport is probably the main factor limiting rural welfare and farm productivity. A second closely related reason is lack of financial deepening or developed financial institutions that cater to the private sector. Providing more credit without artificially low interest rates is needed to achieve increased productivity. Other areas of neglect include transportation, storage and food processing, marketing, changes in the land tenure laws and research and extension. As demonstrated under a current Global 2000 program, the binding constraint for increasing Ghanaian agricultural productivity is

not basic research, but rather credit and other inputs needed to transform the results found on research plots to the farm. Substantial basic agricultural knowledge is available but extension and private input delivery systems are weak.

Given USAID/Ghana's limited manpower and funding levels, USAID/Ghana is recommended to concentrate on no more than two areas. Top priority should be given to privatization. USAID could attach itself to the current World Bank program aiming to privatize key Ghanaian parastatals. In order to enhance leverage, USAID/Ghana should concentrate on parastatals in agriculture. About seven are on the current list of 30 to be privatized. Counterpart funds could be used in three ways: (1) paying off the accumulated debt of parastatal enterprises to be liquidated or privatized, (2) helping with the redeployment fund associated with employee severance and (3) paying for the financial audits clarifying what is being bought and sold. USAID experience in other countries indicates that the program would require conditionality including time tables for all steps of the divestiture process and strong limits on the creation of new parastatals and the borrowing levels on remaining parastatals.

Second priority for USAID/Ghana should be developing the Ghanaian financial infrastructure since credit for farmers and traders remains the major factor inhibiting adoption of available highly productive agricultural packages and marketing nontraditional agricultural crops. Two new developments suggest avenues for entry. First, the Global 2000 program is working to improve land productivity in the poorest dry northern regions and other areas of the country, offering a working program with high payoffs and a very good first-year record for paying off loans. The program is in place but is currently constrained by lack of access to credit and limited staff. Second, the Structural Adjustment Program is concentrating on the expansion and diversification of nontraditional exports. To date, there are no

institutions that specialize in financing nontraditional agricultural exports. Lack of information and other start up costs of the program are hampering spectacular rises in nontraditional agricultural exports primarily in fresh tropical fruits and vegetables in which Ghana has a comparative advantage. USAID could get involved in developing a financial institution or a branch of a financial institution specializing in nontraditional exports. Numerous products can be financed that do not compete directly with U.S. products. For example, the director of the Export Council is looking for funding of a project modeled after one in Sri Lanka aimed at developing an export company at the village level for marketing yams to the European markets. The markets are very strong but supply is unorganized and production for export requires credit. The program meets all the goals of the USAID, World Bank and the GOG.

Third priority should go towards rehabilitating secondary and tertiary market roads. These programs would generate employment and expand Ghana's agricultural marketing base. Fourth priority would involve underwriting the building of infrastructure for new export promotion efforts. A top candidate would be a facility at the airport for storing and handling fresh fruits and vegetables. Stability of supply requires facilities not currently available at the main airport.

All programs should discourage the creation of new parastatals. A major factor behind the success of this program is to what extent the Ministry of Agriculture will support the national goals. Recent MOA documents question the most basic foundations of the Economic Reform Program including high positive real interest rates and the foreign exchange auction for importers of agricultural inputs. The tone of the report and USAID/Ghana's unsuccessful attempts to privatize the Ghana Seed Company indicate lack of support for efforts to privatize the agricultural parastatals. Although positive steps have been

taken regarding other parastatals (such as the Cotton Company),
opposition to reform at the working level cannot be ignored.

I. INTRODUCTION

Problems Preceding the Economic Reform Program (ERP)

Ghana's economy deteriorated steadily with Gross Domestic Product (GDP) declining 0.5 percent per annum from 1970 to 1982. Poor performance in agriculture which decreased 0.3 percent per annum during the 1970s was a major contributor to GDP decline. The main factor leading to the steady and prolonged deterioration of the Ghanaian economy was bad economic policies [(World Bank (1985, p. vii))] that tended to undermine the economic viability of agriculture. Real per capita income fell 30 percent, import volume dropped 65 percent, real export earnings declined by 52 percent falling from 21 percent of GDP in 1970 to 4 percent in 1982 and domestic savings and investment fell from 12 and 14 percent of GDP respectively in 1970 to insignificant levels. The impact of poor economic policies was exacerbated in the early 1980s by a series of severe shocks including the rise in oil prices, repatriation of a million Ghanaians expelled from Nigeria, and the drought. Agriculture declined during the drought years of 1982 and 1983 by 6.7 and 1.5 percent respectively.

During this period of decline, Ghanaian macroeconomic policies were strongly biased against agriculture. Exchange rates and the general pattern of prices and taxes were applied unfairly to agriculture. Consumer price subsidies tended to favor the urban areas at the expense of the rural sector. Subsidized inputs to agriculture were only available to large public and privately owned plantations. As the economy decayed and sources of credit and foreign exchange evaporated, the government massively intervened. By the early 1980s more than 8,000 commodities had price controls. The government had "crowded out" much of the private sector in all areas of

agricultural activity: production, distribution, marketing, and transport.

Few small farmers could take advantage of the advances in agricultural technology, because the GOG had not provided a sound working environment for the private markets that continued to dominate Ghanaian agricultural production. Limited skilled administrative personnel and preoccupation with managing parastatals for the production, distribution, transport, marketing and price setting of agricultural commodities hindered efforts to devise a sound public investment program and create an appropriate macroeconomic and agricultural sector policy framework. The wide and increasing array and number of government parastatals with their high consumption of imports and increasingly bloated employment rolls fueled the instability of the domestic budget and the balance of payments constraints.

The result was declining agricultural production, a steady drop in agricultural exports and foreign exchange earnings, a shrinking of the agricultural tax base, a fall in rural incomes in absolute terms and relative to the urban sector. Domestic debt rose sharply because of the drop in agricultural exports. After credit sources (including credit from other parastatals) evaporated and the GOG was no longer able to raise taxes, the debt was financed by inflationary increases in money supply. Inflation further undermined the economic base of agriculture by undercutting the international competitiveness of Ghanaian agricultural exports. Throughout this period, problems were inefficiently dealt with using more controls and creating more budget draining and foreign exchange consuming parastatals. Ghana's legacy is a rundown agricultural and industrial infrastructure that has limited the gains made from the price policy reforms first developed in April 1983.

Foreign exchange had almost been exhausted by 1983. Even simple farm inputs could often not be purchased. Agricultural produce could not be marketed because of lack of important inputs needed to keep the basic agricultural infrastructure in operation.

Economic Reform Program and Agriculture

The major economic reforms affecting agriculture to date have been associated with the liberalization of prices and removal of price controls and price distortions from both agricultural inputs and outputs. The policy reforms of Phase II of the ERP are detailed in Annex E. The key improvements in price distortions have centered on the recently developed foreign exchange auction which has lessened the difference between the official and parallel market rates; the rise in the farmgate price for cocoa and other tree crops; the attempt and partial success to achieve and maintain positive real rates of interest. These policies have allowed Ghana to again earn foreign exchange which in turn has aided efforts to reduce "nonprice" constraints to agriculture primarily by improving roads and other marketing and transport services. Much remains to be done. Policies have generally been favorable to the agricultural sector and particularly crops and associated agroindustries based on agricultural products with a Ghanaian comparative advantage.

These advantages can be seen explicitly in the Economic Reform Program's (ERP) new 1985 Investment Code. Price policy changes have been augmented by an improved investment climate that gives top priority to agricultural activities including guaranteed land use; permission for importing essential plant and equipment; exemption from payment of customs import duties on plant and equipment; a corporate income tax rate of 45 percent

with allowances and deduction including depreciation or capital allowance on plant, machinery, equipment and accessories to the extent of 100 percent in the year of investment; investment allowance of 10 percent; for tree crops and livestock, excluding poultry, an income tax rebate over a three-year period to be specified by the Investment Centre at the rates of 75 percent in the first year, 50 percent in the second year, and 25 percent in the third year; and exemption of staff from payment of income tax relating to furnished accommodation on the farm.

Moreover, in contrast to earlier years the investment code encourages net foreign exchange earning agricultural enterprises by permitting the operation of an external account in which at least 25 percent of the foreign exchange earnings may be retained for acquiring machinery and equipment, spare parts and raw materials as well as for debt service, profit and dividend payments and remittances by expatriate personnel. This is a much more efficient way of obtaining foreign exchange than through the auction which is still undergoing changes to improve its efficiency.

Impact of Economic Reform Program

The impact of the ERP has been very impressive when comparing Ghana's economy in January 1988 with that of April 1983 when the new radically different program was first unveiled. The April 1983 economy was essentially operating as an autarky. Stores were empty. Few vehicles were running because of lack of tires, spare parts and gas. The basic infrastructure even in Accra was falling apart. The rural sector with its lack of political clout and two successive drought years was in its worst economic position in at least a quarter of a century. This period bleakly contrasts with the partially recovered but still inherently unstable economy of today with its bustling markets,

bulging stores and traffic jams. Streets have been repaired and the overall situation is much improved. While the economy has not yet returned to the real income levels of the mid-1970s, it has made substantial progress over the collapsed state of 1983. Small farmers were among the major beneficiaries of the current stronger economy, as discussed in Chapters IV and VII.

Despite these enormous strides, the economy remains inherently unstable. The wide presence of parastatals that operate inefficiently and use imports intensively tends to destabilize both the budget and foreign trade constraints. Problems are compounded by continued reliance on the foreign exchange earnings of cocoa and its highly volatile price. Sustained development depends on structural adjustment that can more permanently stabilize the economy.

Much of the macroeconomic success is due to the impact of ERP's increases in the farmgate prices for agricultural exports and the resulting rise of agricultural exports on the trade balance, tax revenue base, and foreign exchange position. Because of higher incomes farmers have generally been able to increase the variety and size of their purchases from the urban economy.

Overview of Remainder of Sector Analysis

The remainder of the paper is as follows. Chapter II presents basic trends in agricultural output, prices, exports and imports. Institutional and "nonprice" constraints whose removal has higher economic payoffs in the improved price environment are presented in Chapter III. Chapter IV examines briefly equity and employment factors in agriculture with special emphasis on the differences between the urban and rural sectors. A brief summary of the importance of agriculture and its linkages

to other sectors of the economy are presented in Chapter V. Additional issues including the need to expand and diversify exports along lines of long term comparative advantage are discussed in Chapter VI. Also included in Chapter VI are discussions of the need for removing parastatals in agriculture and relying more on the private sector. A summary evaluation of the Impact of the Economic Reform Program on Ghanaian agriculture and recommended directions for further USAID funding are given in Chapter VII. Annex A includes a brief discussion of supply and demand analysis relevant for examining Ghana's key agricultural crops including cocoa, rice, maize and cotton. The Global 2000 program is described briefly in Annex B.

II. AGRICULTURAL PRODUCTION

Basic Characteristics

Agriculture remains the key Ghanaian subsector because it employs approximately 60 percent of the total labor force, contributes 53 percent of GDP and supplies 77 percent of the value of total merchandise exports--primarily through cocoa. Success of the Economic Reform Program is critically dependent on how the economic reforms directly and indirectly affect agriculture. Because of agriculture's sheer size and significant linkages to the rest of the economy, its success is necessary in reaching the macroeconomic objectives of the program.

Ghanaian agriculture is primarily rainfed. Most producers work on small plots of 2 or 3 acres. Productivity is low. Multicrop patterns prevail because the farmer is risk adverse and spreads his or her productive time over a variety of crops. In his own way he is as sophisticated as a Wall Street investment planner choosing an optimal portfolio which weighs alternative economic returns to risks. At near subsistence, the stakes for the Ghanaian farmer are high. Experiences such as the drought of 1982 have strengthened this mentality.

Failure to take into account such farmer behavior has led to a situation in which knowledge from basic research has substantially surpassed capabilities to successfully apply it. Because changing techniques is risky, the task of getting small farmers to change to more productive technologies has become of central importance to developing Ghanaian agriculture. Cultivable land is plentiful. Only 30 percent of Ghana's 10 million hectares of cultivable land is actually cultivated. Only .07 percent of total cultivable land is irrigated, although the GOG has accorded high priority to irrigation over the last decade. Many farmers particularly in the north still

practice shifting cultivation because land is abundant. But prime land near heavily populated areas is becoming scarce. This trend will continue as population rises, now at an estimated 3 percent per annum.

State-owned farms and plantations have generally had access to capital intensive technologies, but without exception have been failures and have generally been major drains of the Ghanaian treasury. There are also some middle-sized and large farms.

Soil, particularly in the tropical or "forest" southern third of Ghana, is more fertile and diverse and allows a rich array of produce. The southern regions produce the major food and cash crops--cocoa, oil palm, maize, and tubers. The northern Savannah region produces other basic food crops--sorghum, millet, rice, cowpeas, and the potentially important cash crops of cotton, tobacco and groundnuts. Beans and guinea corn are also grown in various parts of the country. (See the export sections for a description of other export crops.)

In the north, cattle are important for draft and meat. Throughout Ghana, sheep and goats are common. Also near urban areas, modern livestock rearing systems (poultry and piggery) are important. Backyard poultry are found everywhere. There seems to be an increase in rabbit and Guinea pig consumption, which appears to be a more cost effective source of protein than poultry.

While substantial production increases and improved allocation of productive resources have occurred since 1983, not all of the increase in production is due to improved economic policies. Neither 1983 nor 1987 were typical production years. Severe drought occurred in 1982 and 1983. Plentiful rain and good crop conditions occurred throughout 1987. The drought was

so severe that farmers claimed they lost almost everything. Cassava became a mainstay for food and cash to purchase basic needs. Thus the separate impacts of the policies and the drought need to be examined, or at least taken into account.

Output Trends

Macroeconomic and agricultural sectoral policies, particularly a highly over valued cedi, led to a decline in the value of agricultural output in the GDP of approximately 0.3 percent per annum during the 1970s. With a rising population, per capita income decreased by 30 percent during this period. Cocoa production fell from over 400 thousand metric tons (MT) in 1970 to less than 160 thousand MT in 1983. Part of the decline in 1982 and 1983 was due to the severe drought that had a devastating impact on farmers. Most of the decline was due to bad economic policies that by 1983 had severely limited many incentives to legally produce cocoa and coffee for sale to the Cocoa Marketing Board.

Decline in output until 1983 of most agricultural products was steady and substantial through 1983. The situation reversed in 1984. GDP contributed by agriculture in constant 1980 prices after three successive declining years registered growth rates of 13.8, 2.8 and 5.3 percent per annum in 1984, 1985, and 1986 respectively. Good weather in 1987 and rising agricultural prices and other improvements in economic policies should continue the trend during 1988.

Input Usage

Imported inputs with some exceptions have been used exclusively by state farms and large farmers. Via price controls and exchange rate distortions, the subsidy element has been substantial. However, the subsidy is being reduced. For

example, fertilizer was introduced in the 1950s by the Ministry of Agriculture (MOA) and supplied free to encourage its use. Fertilizer is distributed by MOA and commodity boards such as the Cotton Development Board (CDB). Since 1978 the subsidy has been reduced. In 1986, the GOG subsidized 60 percent of the transportation cost of fertilizers. The GOG plans to completely remove the subsidy on fertilizers by 1988. Fertilizer importation and sales are expected to be privatized by 1990.

Other inputs such as insecticides and sprayers to farmers have been subsidized by the Cocoa Marketing Board since 1948 at rates ranging from 50 to 100 percent. Cocoa seedlings are still free to farmers. Cocoa researchers at Tafo pointed out that they cannot provide enough seedlings to supply demand for new varieties of cocoa trees. Now, they are providing seeds but supply exceeds demand for the new variety.

Inputs such as cutlasses and sacks (jute bags) continue to be subject to price controls and rationed to farmers' groups by MOA due to scarcity and high open market prices. Mechanical services and irrigation water rates are also subsidized. Veterinary drugs before ERP in 1983, were subsidized. Now they are distributed mostly by the private sector. During epidemics, some are offered free by the Animal Health and Production Department. Improved seeds are produced and marketed by the Ghana Seed Company (GSC) and are also distributed by the Grains Development Board. Fuel is also subsidized, although the subsidy will purportedly be removed in January 1988.

To better understand the potential impact of modern techniques, consider the recent experiment by Global 2000, a nongovernmental organization with the backing of former U.S. President Jimmy Carter. (See Annex B for more details.) Part of the program focused on the Upper West region which is one of the most impoverished in Ghana. Properly using fertilizers under the

guidance of extension workers, the program consisting of approximately 1000 small farmers was able to increase sorghum yields in some areas by a spectacular 10 fold from 350 kg/acre to 3.5 MT/acre. The program sponsors were able to convince local banks to provide credit without guarantees to underwrite fertilizer costs. The payback was very good by Ghanaian standards. This experience shows the economic potential for improving agricultural potential in one of the least fertile and most backward areas of Ghana.

Discussions with small farmers and wholesalers between Tafo and Accra indicated consistently that they generally did not use imported inputs because they viewed them as unnecessary. Researchers and statistics disputed this and indicate that substantial increases in productivity are possible. See Tables - in Annex C. The researchers felt there was substantial areas for improving technical productivity on the farm and remained baffled as to why farmers refused to use modern inputs.

If research is warranted in this area, it is on the economic and social side of the technology transfer problem--not the technical side. In the areas visited between Accra and Tafo, farmers did not complain about the condition of or access to roads, but claimed that many areas are still limited by road access since many of the secondary and tertiary feeder roads need to be overhauled.

Export and Import Trends

Balance of payments pressures eased with the implementation of the 1986 ERP. Strong exports in 1986 were a major factor. An increase of 22 percent over 1985 was due primarily to a 26 percent rise in cocoa exports. Total exports of US \$773 million in 1986 exceeded the programs expectations. Even though world market prices for cocoa were declining throughout most of 1986,

the crop had been contracted early in the year and brought an average price about 11 percent over that of the previous year.

Export figures omit continuing but declining volumes of smuggling through Togo and the Ivory Coast. Some of the increase is due to shifts from illegal smuggling to legal marketing through the Cocoa Marketing Board (COCOBOD). With increased production incentives, exports of cocoa beans rose to 198 thousand MTs, up from the 159 MTs recorded in 1983 but significantly below the 239 MT level recorded in 1982. Cocoa remains the dominant foreign exchange earner accounting for two thirds of total exports and almost 80 percent of export earnings surrendered to the Bank of Ghana. Timber exports increased from US \$28 million in 1985 to US \$48 million in 1986.

Nontraditional exports are sharply on the rise. Pineapples exports have increased almost 3 fold in two years. Since pineapples and other nontraditional exports are not marketed through the government, their value is highly undervalued because of under-invoicing. Additional export proceeds to Europe are placed in European accounts and later transferred to Ghana informally as needed. Thus, the private sector's share is largely hidden. See the section on export diversification in Chapter VI.

Table II.1

Export and Import Trends
(Millions of U.S. Dollars)

	1983	1984	1985	1986		1987
				Prog.	Prov.	Prog.
Exports, f.o.b.....	439	567	633	724	773	764
Cocoa Beans and Products	269	382	412	501	519	470
Gold.....	114	103	91	86	106	132
Timber.....	15	21	28	39	48	50
Other.....	42	61	102	98	100	113
Imports, c.i.f.....	500	616	669	786	713	803
Oil.....	161	161	206	121	123	146

Recent exchange rate adjustments and 35 percent export retention schemes have reinforced selective price incentives to encourage exports.

Table II.2

Actual and Target Exports of Nontraditional Agricultural Output
(Million of U.S. Dollars)

Output	Actual			Target				
	1983	1984	1985	1986	1987	1988	1989	1990
Total Agriculture.....	8.30	8.28	8.72	12.92	18.27	22.05	22.48	34.48
Horticulture.....	0.22	0.18	8.47	0.55	0.99	2.07	3.00	4.46
Pineapples.....	0.20	0.18	0.25	0.43	0.86	1.92	2.83	4.24
Fish.....	7.47	0.54	0.03	14.61	14.80	17.25	21.48	26.72
Tuna.....	7.40	0.62	-	12.75	12.75	15.00	19.00	24.00
Other Produce.....	0.01	0.06	0.20	2.66	2.48	2.73	3.00	3.30

Source: Ministry of Agriculture, Performance of the Agricultural Sector 1987, September 1987, Table 5, p.23.

Responsiveness to Price Incentives

Price controls have been used since 1962 for various purposes including limiting economic rents accruing to sellers in times of scarcity, combating inflation, and keeping down prices of key items in the cost of living. But price controls have consistently proved ineffective in times of extreme scarcity and rapid inflation. They have exacerbated the problems brought about by currency overvaluation and expansionary fiscal and monetary policies [World Bank 1987, p.114)]. Price controls were most damaging to small farmers, because the terms of trade turned against the agricultural sector, and small farmers were not the recipients of any of the subsidized goods and services including credit (at negative interest rates), fertilizer and other modern inputs which due to the highly overvalued currency had become highly subsidized.

By 1970, approximately 6,000 prices relating to more than 700 product groups were controlled. Efforts to liberalize the economy were reversed following a change of government. The Prices and Incomes Board was given authority over all price and wage changes and the number of commodities controlled rose to 8000. But high inflation and administrative limitations made it impossible to keep up with the frequent requests for price adjustments. Failure to adjust the exchange rate led to cheap agricultural inputs that were distributed to the inefficient state farms and plantations, and to large farmers and those with political clout.

With controls, smuggling became a necessity. Imported products shipped to the north were often smuggled into Togo, Ivory Coast and Burkina Faso, with substantial profits. Similarly, northern rice was smuggled out because price controls made it uneconomical to ship the rice to the south. Neighboring countries' markets became well stocked with soap, milk, and other

products that were made in Ghana and smuggled out. Borders were closed during the early 1980s to stop smuggling, but this had little impact.

Price and distribution controls became interwoven with political power. Finally by 1982, as the economy worsened, the GOG recognized that price controls were not working and economic recovery required shifting profits from black marketeers to producers--mainly small farmers.

With an economy that had come to a halt, the GOG undertook its Economic Reform Program based on principles consistent with orthodox Western economic principles. Despite continued commitment to socialistic principles, the recovery program in fact stressed a larger role for the private sector, correcting price distortions, promoting exports and curtailing import substitution industrialization. At the center of the program was the GOG's efforts to reduce the divergence between the parallel rate and official exchange rate. In addition, there was a major effort to remove price controls and raise administered prices particularly for cash crops marketed by the cocoa marketing parastatal. In agriculture, however, self-sufficiency in key grains remains an objective despite its association with inward looking import substitution.

First, a new system was instituted whereby producers simply notified the Prices and Incomes Board of price changes. The board retained its right to intervene. As the list of controlled commodities dwindled to the current eight, the reduced workload for the board permitted a faster turn-around time for the remaining commodities. Firms were permitted to charge a provisional price approved quickly by the board and the review of its recommendation was shifted from the Ministry of Finance and Economic Planning to a commission with representatives from government, labor and business. The review process intervened

when changes were out of line but did not publish official prices.

The program removing price controls has been very effective. The consumer price index (CPI) rose only 10 percent in 1985, the year after price controls were eased. Inflation fell from 122 percent in 1983 to 40 percent in 1984. The World Bank claims that the inflationary impact of massive devaluations and price liberalizations during 1983-85 was limited because demand pressure had already boosted market prices to levels reflecting scarcities and because various measures operated to reduce the gap between supply and demand. On the supply side, the incentive effects of price liberalization helped in four ways: hoarded consumer goods were released, scarcity rents were shifted from distributors to producers, agricultural producers responded to favorable rainfall by greatly increasing food availability, and industrial producers sought additional foreign exchange through a newly opened auction window for foreign exchange. Moreover on the demand side, the ability of consumers to increase effective demand was limited through conservative fiscal and monetary policies.

These policies greatly improved the market situation. Local supplies of some commodities--milk, bread, soap, and beer--could be purchased at prices lower than the previous official prices. Increased imports reduced scarcity rents for other goods including tires and vegetable oil [World Bank, (1987, p.114-5)].

Following the drought, real GDP increased by 10.7 percent in 1984 helped by increased rainfall. This increase was followed by a 6.1 percent increase in 1985 GDP which brought the GDP to within 2 percent of Ghana's peak production year of 1974. Real agricultural output grew 14 percent in 1984 and accounted for 55 percent of GDP. In 1985 it grew another 3 percent. Recent figures indicate that farmers have responded to the price

increases by marketing more crops and shifting back toward cash crops (particularly cocoa) with a relatively higher price rise.

The surge in production allowed the CPI to drop to a 40 percent increase in 1984 and to a 10.4 percent increase in 1985 despite heavy inflationary devaluations. While nonprice constraints and such fraudulent techniques as using wrong weights curtail the marketing of crops, still farmers have increased production as reflected in the agricultural statistics. Smuggling, while still rampant on the borders of Togo and the Ivory Coast, has diminished somewhat as more farmers are marketing their cash crop, particularly cocoa, through the GOC marketing boards.

Three factors contributed to the success of Ghana's liberalization of price controls. First, market prices already reflected scarcities, so that liberalization mainly shifted scarcity rents from distributors to producers. Second, complementary policies helped raise marketed supplies and restrain inflationary pressures, so that consumer resistance was minimized. Third, price control enforcement was depoliticized by permitting provisional price changes while retaining the right of review and by including representatives of interested groups in the review process [World Bank (1987, p.115)].

Table II.3

Official Producer Prices
(Cedis/Ton Deflated Using Rural CPI)

Year	Cocoa Beans	Seed Cotton	Tobacco	Maize	Cocoa Beans	Seed Cotton	Tobacco	Maize
	(Current Cedis)				(70=100) (70=100) (70=100) (77=100)			
1970	229	180	180	-	120	100	100	-
1971	293	180	960	-	90	92	109	-
1972	293	180	1110	-	82	84	115	-
1973	366	180	1180	-	88	71	104	-
1974	439	220	1170	-	90	75	90	-
1975	561	220	1190	-	90	58	105	-
1976	602	770	1850	-	61	129	69	-
1977	788	770	2100	240	35	59	36	100
1978	1333	1320	3560	800	35	58	35	191
1979	2743	1320	5850	1000	46	37	36	150
1980	2743	1320	10730	1650	41	23	41	153
1981	4000	1320	25000	3000	20	11	46	133
1982	12000	1320	25000	5000	49	9	37	181
1983	12000	10710	80000	18000	21	31	52	284
1984	20234	14000	80000	18000	26	30	38	205
1985	56600	25000	125000	20000	66	49	54	210
1986	85000	38000	142000	26000				

Source: Ministry of Agriculture as presented in Dapaah (1987, Table) 8 GFDC recommended purchase price.

III. INSTITUTIONAL AND POLICY CONSTRAINTS

Substantial improvements have been made in Ghana's price environment. The differential between the official and parallel markets has diminished. The prices of cocoa and other exports have risen in real terms. The higher interest rates more adequately reflect the scarcity of capital. In this improved price environment, agricultural production and farm incomes have increased substantially but most of the gain is due to increased acreage and not increased land productivity. In economic terms, much of the change has been movement along a stagnant supply curve in response to more appropriate prices. The supply functions themselves have not been shifting upwards. The gains from the improved price environment are limited by lack of infrastructure including institutions and "nonprice" factors and policies needed to enhance agricultural productivity and profitability. (i.e. or shift up of the supply function).

Improved economic price conditions create an environment in which investments in infrastructure have high social and economic rates of return. This was not generally the case before the ERP. With prices right, Ghana's highest payoff in terms of increased land productivity is possibly the dismantling of the system of parastatals that chokes off development efforts since the public sector is inefficient and noncompetitive. (See Chapter VI.) The public sector does not generally respond to the pricing signals and thus tends to be economically inefficient. Six other related areas limiting land productivity for Ghanaian farmers include 1) rural credit and savings, 2) marketing structure and regulations, 3) transport and fuel, 4) processing and storage, 5) land tenure and 6) technology development and utilization. Reducing these constraints will enhance the price responsiveness of the policy reforms.

Rural Credit and Savings

Credit has an enormous role to play in increasing agricultural production in Ghana. Despite efforts to establish positive real interest rates by raising the nominal rate and reducing inflation via prudent monetary and fiscal policies, institutional credit remains subsidized. With increasing inflation estimated at approximately 40 percent, increases in the nominal rate to approximately 26 percent still yield a negative 14 percent real rate, a subsidy to those with access to institutional credit. Subsidies to large farmers continues. The Export Promotion Council has recently provided credit to large exporters of nontraditional commodities at a 10 percent rate. Small farmers and middle men claim that the bureaucratic red tape and long delays make it advantageous to seek smaller amounts of credit from their cooperatives which are autonomous and self owned. The size of the cooperatives is often limited by theft and dishonesty among other members and management. They are not highly regarded now in Ghana.

The main beneficiaries of institutional credit are 1) large-scale farmers who can provide collateral in the form of land and houses to guarantee their loans and; 2) state owned companies (and their employees). The Ministry of Agriculture estimates that such farmers constitute 20 percent of the farming population but this is certainly too high. Small farmers (less than 10 acres) who produce over 90 percent of the total agricultural output rely on informal credit provided by traders, money lenders and family members.

In the absence of reliable institutions, savings are often channeled into home and on-farm investments. Livestock is a particularly important source of savings and cash. As in many other West African countries, the small farmer is hesitant to place funds in any government controlled savings scheme because

of bad experience dealing with government agencies. Lack of credit has had a negative impact on productivity because it prevents the farmer from obtaining important inputs and services at the critical stages of the farming cycle. Lack of credit to employ workers has prevented some farmers from marketing crops. Lack of credit has been a significant factor hindering efforts to use for modern inputs. See the discussion of Global 2000 in Annex B.

In view of farmer distrust of government institutions, it is not clear that appropriate steps are being taken to provide credit to small farmers. For example, the World Bank (April 22, 1987,p.50) claims the GOG regards the Rural Bank concept as the best means of extending credit to small farmers. Government policy over the 1986-7 period involves strengthening the institutional capability of Rural Banks through training programs for directors and managers of Rural Banks and development of a manual for rural bank personnel. History shows that these programs usually end up benefiting the large farmers by providing them with subsidized credit as is currently the case with the Export Promotion Council. The government should attempt to make interest rates positive and keep them positive, so that funds can be channeled into the most productive agricultural investments. Positive real interest rates can mobilize rural savings and contribute to rural economic expansion.

Marketing Structure and Regulations

Agricultural pricing and marketing policies in Ghana involve fixing producer prices on a range of commodities (food and raw materials) and announcing maximum consumer prices. The government directly intervenes in many activities through its

agricultural parastatals: Ghana Food Distribution Corporation (GFDC), Meat Marketing Board (MMB), State Fishing Corporation (SFC), and the Ghana National Procurement Agency (GNPA). However 95 percent of marketed food crop production is handled by the private sector.

Output. Price controls are a major tool used to reach GOG objectives of attainment of food self sufficiency, raising export earnings, achieving a desirable commodity mix and generating tax revenues. Price controls and regulations have directly and indirectly undermined the economic viability of agricultural output and exports and have generally not reached their goals as indicated by the negative output trends in agriculture that took place during the 1970s and early 1980s until the advent of the ERP.

The GOG's efforts to extract maximum revenues from cocoa farmers to support an inefficient and unproductive urban infrastructure has now become a classic well publicized case of how incompetently administered price controls can undermine the economic viability of a sector and a country. The policy indicates a complete disregard of the importance of maintaining production incentives. Ghana undermined its position as the world's primary exporter of cocoa.

Inputs. The major types of agricultural chemicals imported are weedicides, insecticides, fumigants, seed dressing and fungicides. Agricultural equipment commonly used include tractors and implements, machetes, hoes, felling axes, sprayers and storage and processing equipment. (Vordzorgbe, 1985). The main objectives of price and marketing policies for inputs are 1) to guarantee prices to stabilize income levels to the producer, 2) to guarantee markets to the producer, and 3) to provide foreign exchange for development programs (MOA, Sept 1987, p.101).

Reduction in Restrictions. The dismantling of price controls and reliance on private markets to determine price levels has been a significant part of the ERP. The first phase reduced the controlled items from thousands to 23. In December 1984 the list of essential good was reduced to 17. Now controls remain on only 8 basic manufactured and imported products: imported rice, sugar, baby food, cement, textiles, drugs, matches and soap. Price controls are flexible price-ceilings with full cost plus profit margins passed on to the consumer. Prices of noncontrolled goods are subject of official surveillance under a "reference" price system that allows producers price discretion within a range. Distribution controls were lifted in 1985. The GOG is planning to remove the remaining price and distribution controls (Manarolla and Vordzorgbe, October 1987, p.9).

Raising Administered Prices. In addition to dismantling price controls the GOG is raising controlled prices for petroleum products, utilities, postal services and major export crops, as shown in Table III.1. These reforms generally aid the agricultural sector because the cost recovery measures make delivery of utilities more efficient and provide incentives for increased production of exports.

Table III.I
Petroleum, Utilities and Export Crop Prices

<u>Commodity</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Petroleum (Cedi/imp.gallon)						
Super Gasoline	12	25	60	105	150	190
Regular Gasoline	11	21	56	100	145	180
Kerosine	5	13	25	5	80	110
Utilities						
Electricity (Cedi/umit monthly)						
Domestic (0-60 units)	7	21	118	144	200	NA
Export Crops						
Cocoa (000 Cedi/MT)	12	20	30	56	85	150

Source: Manarolla/Vordzorgbe, October 1987, p.10

Transport and Fuel

Transport costs during the 1970s and early 1980s rose considerably in real terms. Government rates are lower, but most transportation is at the free market rate which varies widely depending on distance, type of goods, and type of road. The World Bank (April, 1987, p.6) points out the market rate for transportation of fertilizers, for instance, on first class roads from Accra to Tamale and Ho was 10 to 12 cedis per MT/Mile in May 1984 (Government rate was 4.5 cedi/MT/Mile) compared to .04 cedis/MT/Mile in 1967/68, an increase of 25 to 50 percent in real terms, deflated by the national CPI.

The increase in real transportation costs on third grade roads and in areas of difficult access must have been even larger (rates as high as 60 to 90 cedis/MT/mile on third grade roads were reported in May 1984). This implies that while large-scale farmers and farmers closer to major urban areas, who might have had better access to the transportation system, would have been better off, the farmers in remote areas, where deterioration in transportation infrastructure has been more marked (and most farms in Ghana would fall in this category), must have experienced very significant real increases in transportation costs as a proportion of the market price. Transportation costs may rise in the future even more, once the implicit subsidies on petroleum products (owing to the overvalued exchange rates) are removed. On the other hand, farmers who previously had little or no access to truck transport may experience a real decline in transport costs. Petroleum prices are less than half the price of the unsubsidized rate in neighboring Ivory Coast. There appears to be smuggling of subsidized fuel from Ghana to the Ivory Coast and Togo.

More than 95 percent of transport of food commodities is handled by the private sector. The public sector runs a small

fleet of trucks for haulages on secondary roads in the rural areas.

Ghana has an extensive but poorly maintained network of primary and secondary roads connecting cities, towns and villages. The ERP has embarked on rehabilitating roads that have been long neglected. A railway system traverses the major cocoa and food growing areas and is presently being renovated for hauling bulky cargo. Volta Lake extends over 200 miles joining the northern and southern parts of the country. A World Bank loan is being used to expand the existing late transport system.

Processing and Storage

Unlike neighbouring Ivory Coast, very little processing takes place in Ghana with the exception of fruits and vegetables. Processing is geared to import substitution and not export markets. Demand is low because Ghanaians prefer fresh fruits and vegetables. Exceptions are the processing of cocoa beans into cocoa powder, cocoa butter, and chocolate (Nestle). Ghanaians eat little processed foods and as a result food prices follow seasonal patterns more than in countries where processing occurs on a larger scale.

Ghana's success at reviving industrial crops could pave the way for important forward linkages into the rest of the economy. (See Chapter V.) Oil palm, cotton, tobacco, rubber, groundnuts and coconut products are all potential candidates for developing manufacturing industries based on products in which Ghana has a potential long-run comparative advantage--or at least not a comparative disadvantage. Efforts to develop these sectors in a framework of parastatals would be almost certainly headed for failure. It is important that the private sector be encouraged to enter Ghana with control over their operations.

It is important to continue increasing incentives to export in a nondistorting way and particularly to avoid an overvalued cedi. With high inflation, it would be easy to return to a situation in which producer prices are inadequate to induce farmers to switch from competing lower yielding foodcrops. The GOG cost-plus pricing is usually inefficient and bureaucratic with little relevance to the real situation. Economic viability would require that products be sold in the open market. It would also require removal of the end products, viz, textiles, cigarettes and other products from the list of controlled commodities.

Losses during on farm storage range from 8 percent after 1 month of storage to 20 percent after 4 months of storage with smallholders, according to a Food and Agricultural Organization (FAO) post-harvest losses project. Losses are even higher with medium scale farmers. There seems to be considerable scope for reducing losses in the framework of food security policies. Warehouses and silos are mainly owned by commercial farmers, public corporations and the processing industry (Royal Tropical Institute, September, 1987 p. iv). Of the annual production of maize, 55 percent is stored on the farm, 20 percent in private traders' stores and about 4 percent by the public sector. The rest is consumed during the 8 weeks harvest period.

The GFDC has about 45 thousand MT capacity in silos and warehouses. Those in the south are in fair to good condition. Those in the north are in fair to poor condition. Silos are probably not needed because the market system is a bag handling system. When maize has to be dried, it is more efficient to have it in bulk, as drying in bulk is much cheaper, providing the silos are properly equipped. Since most silos are not properly equipped for drying, there is no advantage to bulk handling.

Land Tenure

There is a need to increase the amount of agricultural land that can be bought and sold on a commercial basis. Great scope remains for improving the land tenure system which is constrained by the following sociological factors.

In the North, all land is vested in the government. The government does not compensate anyone when land is used by the government. This has been the case since colonial times. In the South, land continues to belong to the tribes or individuals. When the government acquires land, it must compensate the owner. The government supports the traditional system of land acquisition in the country and the system differs from area to area. In some areas the individual can establish his right by being the first to cultivate it. The land belongs to him as long as he continues to cultivate it.

Land owners can give part of the land to a "stranger" farmer. The tenant can share the harvest equally with the land owners (i.e "ABUNU" system). Or the tenant can give one-third share of the harvest to the landowner ("ABUSUA" system). Land can also be leased but never bought outright.

Chiefs can also lease lands under long-term arrangements to individuals or companies. One plantation owner says that the terms depend on the sophistication and quality of advice given to the tribal leaders. Land is abundant and land not leased is not used and will bring no revenue to the chief or the tribe. Thus for example, a fifty year lease at fixed rental can lead to highly undervalued land after a few years.

Technology Development and Utilization

There appears to be a consensus that a large body of technological information is available for Ghana that can greatly enhance agricultural land productivity in both food and cash crops. The problem is providing an environment in which it is profitable and feasible for the farmer to use the technical packages. In addition to the constraints mentioned earlier in this chapter, there is a need to further develop a system of extension workers.

IV. EMPLOYMENT, INCOME AND EQUITY

The period of decline of per capita income from the early 1960s to the early 1980s increased the incidence of absolute poverty, worsened income distribution and reduced efforts to alleviate poverty [Dapaah (1977, p. 2)]. The launching of Ghana's ERP was the government's response to a downward economic spiral that had its major roots in reduction of output of key agricultural sectors.

Because of the adverse impact of former policies on income distribution and basic needs, the ERP has a strong social sector and poverty expenditure program aimed at reducing poverty in the short- and long-run. Increasing allocations for equipment, materials and supporting inputs for agriculture, health and education focus on social development including support for rural feeder roads, water supply, primary and secondary education, health, community forestry, and rural electrification and other services of great importance to the rural poor. Most of these programs and projects directly or indirectly impact on the poor in the rural areas. They tend to encourage capital investments. Specific programs aiming at reducing the gap between the rural poor and urban privileged include (1) extension of electrical power transmission lines and road and water communication links to the poorer Northern regions, (2) shift in resource allocations with an expanded level of health and education expenditures towards primary health care and primary education, (3) increased overall public investment for roads and highways which accounts for over 20 percent of the expected expenditures from the development budget and includes highly labor intensive projects with considerable scope for employment generation.

The major beneficiaries of the ERP are producers of tradables and groups connected to the impact of growth in cocoa and other productive sectors. The ERP has most negatively

affected those--not generally the poorest--whose livings were derived from services and rents in the former restrictive protected regime. These groups are among the most politically powerful in Ghana. Specifically the ERP in the short term will burden some of the poor because of (1) price changes resulting from exchange rate movements and changes in taxes and tariffs (i.e. some goods and services have risen because of depreciation of the cedi and some because of higher taxes and cost recovery in the provision of government services such as petroleum prices and utility tariffs); (2) the removal of forty-five thousand workers from the civil service and twenty thousand from government parastatals over the 1987-9 period; (3) employment losses arising from the adverse effect on inefficient enterprises from the liberalization of trade and related tariff reforms.

The most politically sensitive consequence of (1) devaluation and (2) curtailing the administration of commodity prices is the increase in food prices that threaten the nutritional well-being of urban consumers and to a lesser extent the many rural households that are net purchasers of food but that have not benefited directly from shifts in relative prices. The Government of Ghana states the large price increases have not happened because of "exogenous fortuitous factors":

In particular, maize, which on average accounted for just over one half of domestic cereal availability since 1980, declined in price subsequent to the beginning of the ERP. In 1980-83, the real retail maize price (1977=100) was cedis 102/kg, falling to 65/kg in 1984-86. Real retail rice prices which were cedis 432/kg during 1980-83, fell to cedis 280/kg during 1984-96. Similar declines were noted for other starchy staples such as cassava, as well as edible oils. Part of the reason for the decline in food prices was that prices were very high at the start of the ERP due to the drought of 1982/83, and part of the good harvests since then.

Due to these reasons, the impact of price changes on the poor in Ghana has not been particularly adverse so

far. Indeed, the index of the real minimum wages has increased from 32 in 1983 (1983=100) to 56 in 1986. However, poor rains and shortfall in production in the early part of 1987 has fueled inflation, and this will impose hardship on the vulnerable groups. Though the rains did come, they caused flooding in some areas with further adverse consequences for the rural poor. Moreover, further depreciation of the currency will increase the price of tradeables because the scarcity rents of traders have already been absorbed. The effects are already beginning to show: while inflation was 10.6 percent in 1985 and 24.6 percent in 1986, it rose to over 35 percent in 1987 [GOG, November (1987, p.7)].

Rural/Urban Terms of Trade

Table IV-1 indicates that between 1977 and 1987 agricultural prices basically coincided with the CPI as shown in the columns for CPI for food and the nominal price index for cocoa [Seini, Howell, Commander (1987, p.11)]. Nominal price indices also indicate that prior to 1984 intersectoral prices showed few significant differences, although nominal prices for cocoa rose faster than those of food prices in the ERP Phase I period.

Whereas cocoa prices fluctuated between 1977 and 1983, the real price of food rose progressively, reaching its peak in the drought year of 1983. The price of cocoa relative to food crops actually declined rapidly between 1981 and 1983, but rose steeply between 1984 and 1987.

With respect to intersectoral terms of trade, Table IV-1 price indices for food represent agricultural sector prices and indices for industrial prices (i.e. combined average indices for locally manufactured clothing and footwear, beverages, tobacco and furniture) represent manufacturing prices. Because of the historically inward-oriented import substitution strategy,

industrial products are largely manufactured and consumed locally. The terms of trade have worsened for agricultural products (food) between 1977 and 1987 by about 52 percent. However in the same period the cocoa terms of trade improved over 46 percent above the manufactured [Seini, Howell and Commander (1987, pp.11-13)]. If all food and cash crops were included in the analysis, the agricultural terms of trade would have probably increased vis-à-vis the other sectors.

Table IV-1

Relative Price of Agricultural Crops: 1977-1987

Year	CPI	CPI (Food)	Nom. Ind. Price Index	Real Ind. price Index	Real Food Price Index	Nom Cocoa Price Index	Real Cocoa Price Index	Intra- Sector Terms of Trade	Inter- Sector Terms of Trade (foodcrop farmers)	Inter- Sector Terms of Trade (cocoa farmers)
1977	100	100	100	100	100	100	100	100	100	100
1978	173	159	209	121	92	200	115	125	76	95
1979	267	258	294	110	97	300	112	116	88	102
1980	401	393	462	115	98	300	75	77	85	65
1981	869	829	1104	127	95	900	103	108	75	81
1982	1062	1125	1122	106	105	900	85	81	99	80
1983	2357	2755	2273	96	117	1500	64	55	122	67
1984	3304	3059	4092	132	93	2251	68	73	76	52
1985	3647	2718	4950	134	75	4246	115	153	56	86
1986	4523	3269	6510	139	72	6414	141	195	52	101
1987	5400	3841	7750	147	71	11253	214	301	48	146

January 1987

Rural Incomes

A farm survey carried out in early 1987 collecting data directly from cocoa farmers in an old cocoa growing area of the Ashanti region where about 84 percent of the total cultivated land is allocated to cocoa of the Ashanti region showed that the average gross earnings from cocoa is 100 thousand cedis per farmer. This is more than two times what a cocoa farmer could have earned in his next best alternative, palm oil which gives an average gross income of about 45 thousand cedis per farmer as indicated in Table IV.2. See Seini, Howell and Commander (1987, Table 11. p.34). Palm oil was followed by plantains (21 thousand cedis), yam (17), cassava (14), maize (11), citrus (7), cocoyam (5), and other (10).

Based on the survey data, frequency distribution of cocoa incomes indicates a skewed income distribution. One cocoa farmer earned 4 million cedis which represented 27 percent of gross cocoa proceeds. Eighteen percent earned between 100 and 600 thousand cedis per year. The total income from cocoa for the smallest 100 farmers was only 926 thousand cedis which represented 6 percent of gross receipts or an average of over 9 thousand cedis per farmer. In contrast the next highest 48 farmers in terms of cocoa income earned a total of 14 million cedis or 94 percent, an average of 289 thousand cedis per farmer.

Thus unless an equitable land tax or other device is used, the rise in cocoa prices may increase inequities between cocoa and noncocoa farmers (see price indices in previous section) and among cocoa farmers because a few large cocoa farmer will reap a disproportionate share of the increased revenues. However, all cocoa farmers would benefit in absolute terms. A land tax rather than price controls will lead to a more efficient allocation of land and labor resources.

Table IV.2

Summary of Income for Crops of Cocoa Farmers

Crop	Value of Output (Millions)	Number of Farmers	Percent of Sample	Average Value of Output (000 Cedis)
Cocoa	14.798	148	98.0	100.0
Oil Palm	0.739	17	11.3	43.5
Plantain	2.867	134	88.7	21.4
Citrus	0.020	3	2.0	6.7
Maize	0.712	66	43.7	10.8
Cassava	1.478	101	66.9	14.6
Cocoyam	0.591	107	70.9	5.5
Yam	0.578	30	19.9	17.3
Other Crops	0.224	22	14.6	10.2

Source: Seini, Howell, Commander, (1987, Table 11).

Table IV.3

Frequency Distribution of Cocoa Income

Class (a) (Thousands of Cedis)	Absolute Frequency	Relative Frequency	Cumulative Frequency
Up to 10	19	12.8	12.8
10 to 20	25	16.9	29.7
20 to 30	28	18.9	48.7
30 to 40	16	10.8	59.5
40 to 50	12	8.1	67.7
50 to 100	18	12.2	79.7
100 to 600	27	18.3	98.0
Over 600	3	2.0	100.0

Source: Seini, Howell, Commander (1987, Table 12) Computed from survey.

Access To Services

Much of the increased output response appears to have been derived from expansion of acreage under crop production rather than increases in yield per acre. In the survey from the Ashanti cocoa region, increased productivity results from expanded area in bearing trees and use of purchased farm inputs. In the survey the most utilized input is pesticides. Ninety percent of the cocoa farmers sprayed to control pests. Hired labor was used by 90 percent of cocoa farmers. Of the 72 percent of cocoa farmers who planted cocoa, 59 percent of them used hybrid cocoa seedlings obtained from the Cocoa Services Division--a parastatal. But 80

percent who used the hybrids said they obtained the seedlings with difficulty.

Farmers do not generally use fertilizer on cocoa or other crops. Farmers attribute this to inadequate returns to fertilizer usage even under what they regard to be good soil conditions. Farmers are concerned about the sharply rising cost of insecticides and mistblowers. Rehabilitation of cocoa has led to increased demand for repair services, but there are few complaints from farmers about serious delays. Twelve models and large stocks of spares are available in the state owned stores. As with other input services, the scope for privatization appears restricted because the private sector cannot compete with the subsidized sales by the state owned marketing parastatals.

From Rural/Urban to Urban/Rural Migration

The growth in population of Accra and other urban areas up to the early 1980s was due to the expected higher wage that a farmer could receive in the city versus staying on the farm. This included both remuneration for services rendered and consumption of free or highly subsidized commodities and public services disbursed in the urban areas. One of the goals of the ERP has been to create incentives to produce on the farms and to change expectations that expected incomes for farmers are higher in the city. This objective appears to be taking place.

Retirement of thousands of nonprofessional government workers, freeing up of agricultural prices and removal and/or reduction of urban subsidies in Ghana in recent years appears to have contributed to reverse migration of urban workers returning to the farm. Professionals are in short supply and are not laid off. Reverse migration takes place in several ways. First, many laid-off workers can no longer support themselves in the city.

Ghanaian social structure is such that, whereas urban communities do not provide for the unemployed without means, the rural areas will provide for them. Interviews with workers in both rural and urban areas found substantial support for this phenomenon. Second, urban workers and professionals are now buying or leasing farm land in and around Accra and other urban areas. They pay workers to farm the land and/or engage in the work effort themselves. Interviews with farmers including teachers and doctors indicate they do this because their salaries are not enough to support their families. This work activity allows them to maintain their former standards of living. Most of these workers are engaged in mixed cropping activities which include both food for own consumption and cash crops. All indicate that the economic incentives are substantial and that the activity contributes substantially to their livelihoods. No statistics were found indicating this direction of migration, but interviews all confirmed that reverse migration is a substantial impact of the ERP.

Mitigating Social Costs of Adjustment

The above discussion indicated that weather and other factors alleviated many, but not all, of the costs anticipated under the ERP. The GOG was concerned about the plight of the poor in the short term and indicated that inadequate attention could undermine the sustainability of the economic reforms. This consideration led to the World Bank's Programs of Action to Mitigate the Social Costs of Adjustments (PAMSCAD) which at the outset purportedly could only be financed by additional aid. The possibility of greeting such support and the encouragement provided by donors at the May 1987 consultative meeting was critical to the development of the action program. USAID has included helping to mitigate the social costs of adjustment as one of the five goals of their program. This may not be critical because Ghana was able to accommodate over one million

repatriated from Nigeria in the early 1980s when conditions were much worse (i.e., would it be more difficult to absorb twenty or thirty thousand laid-off workers during the current period of relative prosperity, compared to accomodating the one million plus Ghanaians that arrived during 1982 and 1983 when the economy was in dire straits?)

The target groups are specifically (1) rural households especially in the Northern and Upper Regions, who have low productivity, poor access to social services and income increasing opportunities, and who suffer particularly from unemployment and hunger during the lean season. (Generally it is recommended that donors concentrate on investments in human capital for these groups located in areas with little economic potential since investments can be carried with them when they migrate); (2) low income unemployed or underemployed urban households who lack productive economic opportunities and have suffered from the increase in prices of essential commodities; and (3) enterprises, who lack productive employment opportunities. The latter two groups have been most adversely affected by the ERP.

Rural per capita consumption was estimated to be only 60 percent of the urban level in 1974-5. Within rural areas, the poorest are the Northern and Upper regions with per capita consumption well below the rural average (52 and 40 percent respectively). Chronic household food insecurity is most critical in the north which suffers from a long dry season, virtual absence of irrigation rapid desertification, and a generally difficult agro-climatic environment. Malnutrition among pregnant women and pre-school children is most acute during the preharvest season. These regions are less well served by regional distribution of health institutions and primary schools. The early phase of ERP did little for these regions.

The needs of these target groups appears to be: income and nutrition supplement in the lean seasons as well as other human capital investments (i.e. primary education, health, potable water, etc.) for small rural households in the North; productive employment opportunities and nutrition supplement for those retrenched from the public and private sectors; improved nutrition and housing of the urban poor. Phasing out feeding subsidies in educational institutions could lead to reduced educational access.

PAMSCAD has projects designed to include community initiative for communities to identify and implement themselves. These projects aim at rehabilitating and constructing human and physical capital infrastructure and address the needs of the vulnerable groups and generate employment. Interventions are in the areas of water and sanitation, health, nutrition and shelter, and improved access to education.

One program operates through credit schemes for small scale enterprises and farmers. In particular, a credit scheme for Small Scale Enterprises have been proposed that would channel US \$2 million through the Bank of Ghana to local banks, who will appraise the loans. A spread of 8 to 10 percentage points is proposed to be provided to the banks to encourage lending to small-scale enterprises. Placement counselling and training centers would assist entrepreneurs in preparing feasibility reports and in following-up on purchasing, financing and marketing. The credit line is aimed to help set up 340 enterprises every year and will help generate 4 thousand man-years of employment per year.

A parallel credit scheme for small scale industry, a US \$3 million Agricultural Rehabilitation Credit for Peasant Farmers, has been proposed. This would provide credit to small scale farmers and the rural poor. In addition (or in lieu of a portion

of the credit line), commodity aid in the form of simple inputs (such as Wellington boots and gloves and simple agricultural implements) have been proposed to help women shea nut farmers, small scale farmers and agro-based small cottage farmers.

V. RATIONALE FOR AGRICULTURE-LED DEVELOPMENT STRATEGY

Success in agriculture is necessary for success in the Ghanaian macroeconomy because of the overwhelming importance of agriculture as a source of employment (60 percent), GDP (53 percent), tax revenues and foreign exchange earnings--primarily cocoa (77 percent). Because of illegal smuggling, over-invoicing imports and under-invoicing exports, the official statistics associated with foreign exchange earnings understate the true value of agricultural exports in the economy.

Agriculture is also important in terms of its linkages to the rest of the economy. The rural sector supplies much of the unskilled and semi-skilled manpower to the urban sector via rural/urban immigration. It offers an important social security system to the urban sector that cannot always provide for its old and unemployed. Increased farm incomes provides an increased market for goods and services produced by the other sectors of the economy. On the demand side, increased farm incomes leads to increased demand for final consumption items that are produced in Ghana's factories--furniture, soap, palm oil, processed grains, apparel, tobacco, foam rubber mattresses, salt and many others. On the supply side, increased small farm profits has important forward and backward linkages to the rest of the economy. Forward linkages include those industries processing Ghanaian farm produce including food processing of chocolate, pineapples, oranges, palm nuts, rice, shea nuts, and others. Also included are important transport and marketing services centered on agriculture. Backward linkages include demand for inputs used in agricultural production including poly sacks, feed mixing, chemicals, fertilizers and tractors. Also included are small farmer demand for farm implements and services such as provision of credit through the banking sector, and the marketing and servicing of inputs, transport and machinery needed for production.

In addition World Bank experience indicates that economic rates of return in agriculture are comparable with those of other sectors. Experience shows that an outward export oriented development strategy relying on the private rather than the public sector has a better development track record than import substitution strategies relying primarily on the public sector [World Bank (1987)]. Countries such as Taiwan, Ivory Coast, Korea, Malawi and Malasia stressed exports and concentrated on devising a framework of price and other incentives to guide public and private sector activity and in designing an appropriate public sector program. These countries plan but in a different way. Those countries that performed best combined effective planning for the public sector (non price planning) with avoidance of price distortions for the macroeconomy as a whole.

The sheer size of agriculture in terms of production, employment, tax revenues and foreign exchange earnings makes successful stabilization requisite on achieving a healthy productive agricultural sector. Moreover increased crop production is foremost in Ghana's national plans and is critical in improving the nutrition, health and basic needs of the very poor. The interdependence of agriculture, its potentially high economic rates of return, and the favorable track record of countries stressing outward oriented development support an agricultural-led private sector oriented development strategy for Ghana. See Chapter VI for a discussion of the importance of the private sector.

VI. OTHER ISSUES

There are at least 8 additional issues that can be discussed in developing an agricultural based development strategy for Ghana: 1) expansion and diversification of exports, 2) comparative advantage, 3) smuggling to the Ivory Coast and Togo, 4) irrigation, 5) consistency of the goals of USAID, the World Bank/IMF, and the Government of Ghana (ie, self-sufficiency in Ghana's food policy), 6) privatization and agricultural parastatals and 7) the auctioning of import licenses, and 8) cooperation of the Ministry of Agriculture in supporting the program.

Expansion and Diversification of Exports

Critical to the stabilization of both the domestic budget constraint and the trade balance, is the increase and stabilization of export earnings. Export diversification is needed [World Bank (1987, Vol. I, pp.1-2)] to

- . Meet the short to medium term shortfall between the economy's foreign exchange needs and the proceeds expected from the traditional exports, sustainable net borrowing and obtainable grants
- . Decrease the economy's vulnerability to future fluctuations and perhaps declining demand in the international cocoa and perhaps some minerals markets
- . Enhance domestic value-added in existing exports, especially through relatively labor intensive processing of raw materials such as lumber, in order to deepen Ghana's weak and truncated production structure and to reduce its dependency on the traditional African trade pattern of raw materials export and manufactured imports
- . Accelerate economic growth, and hence taxable profits and wages, by harnessing underemployed

human resources and/or underutilized especially efficient and profitable new activities with horizontal and vertical linkages

- . Make a critical and (compared with efficient domestic market production) easily identifiable contribution to the reorientation of the production structure away from import-intensive or otherwise inefficient import substitution; and
- . Turn to advantage the very large population of expatriate Ghanaians with foreign market knowledge, investible funds and/or entrepreneurial skills.

Success to date in expanding nontraditional exports has been substantial. See Table II.2 for details. The estimated value of nontraditional exports in 1986 is US\$45 million, less than 6 percent of total exports. The conservative and optimistic estimates for 1991 targets, respectively totalling US\$100 and US\$180 million (1986 prices), comprise:

- . US\$33 and US\$58 million for fresh agricultural produce (sheanuts, pineapple, coffee, rubber and perhaps kolanuts and some horticultural products apart from pineapple);
- . US\$33 and US\$53 million for marine products (mainly canned tuna);
- . US\$22 and US\$37 million for processing wood products (veneer, furniture parts and joinery); and
- . US\$12 and US\$32 million for manufactures (including aluminum products, processed "ethnic" food, juice and salt).

Continued success will require additional pressure to shift resources from current import substitutional industries and crops (i.e. rice). See section below on comparative advantage.

Constraints. Nontraditional export potential is constrained by a variety of policy-induced and institutional factors within the GOG's control. These are numerous and fall into the

categories 1) incentives and regulations, 2) finance and investment; 3) product development and technology, 4) ancillary activities and infrastructure, and 5) marketing services and attitudinal problems. [See World Bank (1987, Vol. 1, pp.9-29) for a detailed discussion of the constraints.] The World Bank in examining potential export areas found the following industry specific problems for industries with backward linkages to products in which Ghana has a comparative advantage. See Table VI-1.

Comparative Advantage

Moving resources towards those crops in which Ghana has a comparative advantage and agroindustries based on those crops is a key part the current program shifting from import substitution to export promotion. Choosing the wrong crops for export and on which to base Ghana's manufacturing industries will undermine the current GOG effort to compete in world markets.

For this purpose, the World Bank has correctly used Domestic Resource Cost coefficients (DRC) which measure the cost of domestic resources (land, labor, materials etc.,) used to save or earn a net unit of foreign exchange to identify areas of comparative advantage and disadvantage. The lower the DRC coefficient, the more efficient the economic activity. A DRC less than or equal to unity (using the opportunity costs or shadow prices for land, labor, capita and foreign exchange) indicates a comparative advantage in the particular commodity and technique. The World Bank analysis of the incentive framework was also undertaken in terms of financial returns and effective rates of protection. See Table C.6 for a summary of the findings.

Table VI-1
 Examples of Export Activities Requiring
 Better Products and/or Process Technology

Type of Problem	Activities Affected
Inappropriate product design	Wood processing (furniture)
Wrong choice of subspecies	(Some horticultural crops (mangoes) (Some grains (Maize))
Poor quality control	Almost all
Technical inefficiency	(Several crops (maize), wood (processing, lobster catching)
Insufficient scale	Oilseed milling.
Obsolete machinery	(Much of the textile sector, tuna (canning, aluminum products)
Shortage of raw materials	(Wood processing, crops requiring (fertilizer (most), crops requiring (seedlings (cocoa, oil palm)).
Lack of skilled labor	(Land clearance for horticulture (rubber tapping, joinery.
Overstaffing	Textiles
Neglected trees and/or estates	Rubber, coffee, limes
Inappropriate location	Some pineapple operations
Poor storage facilities	Tobacco, maize, pineapple

Source: World Bank (1987, Vol. I, pp. 22-23)

Dapaah (1987, pp.10-11) points out that both the initial 1985 and later revised analyses show the explicit and implicit tax on cocoa, cotton, tobacco and rubber are high. Initial and revised analyses confirm Ghana's strong comparative advantage in tree crops. The revised DRCs were down across the board compared to the earlier 1985 values because of increases in two components of net value-added at world prices: 1) the shadow exchange rates and 2) the domestic port charges. They swamp the effect of lower international prices which by themselves would have caused the DRCs to rise. Also a persistent low wage and a higher official and shadow exchange rate means that Ghanaian labor costs seem to be much lower than similar costs in neighboring countries.

The findings show an improved outlook for all crops. The DRC rice varies from .84 (small scale irrigation) to 1.07 (improved) on the optimistic side. But the DRCs for mechanized (-3.98 at wholesale) and large-scale irrigation (1.74 at wholesale) rice production suggests these techniques do not make good use of domestic resources as import-substitution strategies in urban consumption centers and should be abandoned.

Maize DCRs show the largest divergence between those measured at farmgate and those measured at wholesale reflecting greatest per unit distortions in handling and distribution margins. DRCs are least for tobacco, cotton and tree crops.

Dapaah points out the greatest comparative advantage occurred with tree crops (coffee and cocoa). They were also the crops most heavily taxed by maintaining an overvalued exchange rate. The overvalued exchange rate induced increased demand for relatively cheap imported rice at the expense of locally produced rice and other grains.

Smuggling Cocoa to the Ivory Coast and Togo

For crops like cocoa in which Ghana has a comparative advantage there is the issue of how far below world and farmgate prices given in the Ivory Coast and Togo should Ghana charge. Ghanaian cocoa is a classic case well documented by the World Bank [e.g. World Bank, (1981, p.26)] of what can happen when a country with a monopoly position in marketing (i.e. COCOBOD) attempts to lower the farmgate price to raise its tax revenues. Over the 1970s and early 1980s cocoa prices offered by the COCOBOD were a small fraction of what was being offered in the Ivory Coast and Togo. Not surprisingly, by 1983 large amounts, maybe most, of Ghana's cocoa was being smuggled in truck loads across the border yielding no taxes or foreign exchange for the Government of Ghana. The drying up of foreign exchange prevented goods from being imported and the formal economy fell apart. In such a collapse, the insignificant aggregate investment levels registered in 1982 were a foregone conclusion.

Ghana's share of world production shrank from 566 thousand MT in 1965 to 249 thousand MT in 1979. It's rank fell from first to third. The price index of all consumer goods rose 22 times between 1963 and 1979. Food prices in the neighboring countries rose the same and cocoa prices rose 36 times. But cocoa prices to farmers in Ghana only rose 6 times. The main reason was the overvalued cedi.

Raising the price of cocoa was and is a major part of the ERP. However, the price is still barely half of the international price and substantially lower than the price offered in the Ivory Coast. But because within Ghana the price of cocoa rose faster than other prices and by a substantial margin the relative difference between the farmgate price offered in Ghana and the Ivory Coast diminished leading to a decline in

the volume of smuggling. But a renewed rise in inflation and poor management in the Cocoa Marketing Board can easily let the situation get out of hand and again undercut the country's main source of foreign exchange. See the above discussion of comparative advantage.

Irrigation

Less than 0.5 percent of total noncocoa acreage in Ghana is under irrigation or being prepared and near completion for irrigation. Plans as late as 1985 proposed to develop 180,400 hectares by 1993, a more than 15 fold increase over current acreage. These plans aim to meet the goal of self-sufficiency in rice--one of the objectives of the GOG. But estimates show high irrigation development costs in Ghana (at least US\$15,000 per hectare). The factors responsible for high costs are inadequate local expertise in planning, design and construction and hence involvement of expensive expatriate expertise; inadequate planning leading to costly design changes during construction; costly involvement in construction of on-farm works, which should be handled by farmers; delays in obtaining imported inputs (owing to foreign exchange shortage) causing costly delays in construction.

Reducing the irrigation costs is an issue that must be resolved in order for Ghana to have a comparative advantage in rice production. The domestic resource cost coefficients and financial rates of return indicate avoiding further investment in this infrastructure even if it results in failure to meet self sufficiency in rice and cotton. Even if two rice crops per year were assumed, the costs are excessively high (a DRC of 17.01 and negative value-added). See above section on comparative advantage. Eighty five percent of irrigated area is devoted to rice cultivation and the costs of irrigation to the economy are enormous.

In contrast, cotton has attracted economic returns under rainfed conditions and could be economic under irrigated conditions with some cost reductions or yield improvements (DRC of 1.08).

Irrigation strategy must be changed and more research should be carried out before additional investments are made in this infrastructure. Studies could include technical and economic feasibility of alternative cropping patterns in irrigated areas, review of on-going schemes, investigation of methods to reduce costs, and analysis of cost recovery in completed schemes. If costs could be reduced substantially there is the possibility that there might be a long run comparative advantage in rice and cotton production using large scale irrigation.

Consistency of Goals

The stated goals of USAID, the World Bank/IMF and the GOG are consistent and appropriate for Ghana. Ghana's Agricultural Policy according to Dr. Dapaah of the Department of Agriculture is to "evolve a development oriented, productivity enhancing and competitiveness Promoting National Agricultural Strategy that is consistent with:

- . Providing adequate levels of incomes to efficient farmers, fishermen, processors and distributors as well as others in the food sub-sector
- . Insuring a dependable and nutritionally balanced diet for all Ghanaians at reasonable prices both now and in the future
- . Developing and expanding Ghana's agricultural trade and export opportunities in those commodities that she currently has comparative advantage while working to enhance the competitiveness of those she has only a marginal

comparative advantage to improve Ghana's balance of payments position [Dapaah (1987, p.5)]".

Specifically under Phase II, Ghana is expected to [Dapaah (1987, pp.8-9)]:

- . Attain self-sufficiency in cereals, starchy staples, animal protein foods, and agro-industrial crops
- . Maintain adequate buffer stocks for reasons of price stabilization and food security
- . Improve storage, processing, and distribution system to reduce post harvest losses by 50 percent
- . Increase exports of both traditional and non-traditional crops
- . Improve the performance of livestock and fisheries sub-sectors
- . Strengthen the policy formulation capacity of the MOA
- . Improve agricultural research, credit, and marketing facilities, and
- . Insure returns to efficient farmers which are adequate for the adoption of improved technology to increase the productivity of Ghanaian agriculture to levels comparable to those prevailing at the international level.

A complete description of the policy reforms of Phase II are presented in Annex E.

The principal purpose of USAID/Ghana's assistance program is to support Ghana's Economic Recovery Program, which is now in Phase II. USAID/Ghana's five development goals are to:

- . Restructure the government sector
- . Create a liberalized and self-reliant agriculture sector
- . Improve the health status of the Ghanaian population.

- . Generate employment opportunities through growth of private enterprise.
- . Counterbalance the negative effect of structural adjustment.

Reaching all five is closely related to GOG success in restructuring the economy under a more outward agriculture-led private sector oriented development strategy. Even health status and nutrition of the Ghanaian population has improved with the success of the agriculture-led strategy.

One possible conflict in objectives is in USAID's second goal of having a "self-reliant" rather than a "self-sufficient" agricultural sector. It is more economically appropriate to have a self-reliant than a self-sufficient economy, if self-sufficiency means self-sufficiency in crops regardless of Ghana's comparative advantage. To illustrate, the World Bank (1985, p. xi) points out that:

substantial increase in maize production (self-sufficiency had been reached in the mid-1970s) would appear to be economically feasible and should be pursued, primarily through increase in yields. However, the objective should be food security through economically efficient means rather than self-sufficiency at all costs. In contrast to maize, the economics of rice appears very unattractive. Pending movement to an equilibrium exchange rate and liberalization, there is a need to reduce the high protection given to rice... This can be done possibly by increasing rice imports (and/or food aid) to lower open market prices of rice. This will force the inefficient producers out of production while the potentially efficient would be induced to improve their management standards.

Thus, the United States should be aware of the potential political costs of destabilizing Ghanaian grain markets by "dumping" large amounts of PL 480 shipments on the economy.

Privatization and Agricultural Parastatals

In principle, the issue of shifting resources from the public to private sectors has been decided. But in practice, there has been limited real effort to privatize Ghanaian parastatals. The major justification for relying more on the private than the public sector is its greater productivity, efficiency and increased competitiveness. Competition is the best way to insure that goods and services are produced at the lowest economic costs. If customers are free to choose in the market place, pressure is applied on companies to increase efficiency and cut costs.

Ghana's large complex of parastatals has existed for more than 20 years. There is little or no competitive pressure. Between 200 and 500 (depending on how parastatals are counted) State Owned Enterprises (SOEs) employ over 120,000 Ghanaians. But the results have not been satisfactory. The economic return on capital investment is negative or low. Their prices are high. Productivity is low. Manpower costs are bloated. Utilization is often less than 20 percent. Customers are not satisfied. The SOE's recurring expenditures are a major drain on the domestic budget. High propensity to import inputs and raw materials makes them a major drain on foreign exchange and contributor to the trade deficit.

The reasons for these shortcomings are not simple. The basic fault lies with the system, as well as management and workers. Ghanaian parastatals are constantly open to political and bureaucratic involvement. Social and commercial objectives become mixed, and both objectives suffer. Because the Ghanaian parastatal borrowing is underwritten by the GOG, it is no different in market terms from other forms of public sector borrowing. Thus the needs of individual firms must be subordinated to the macroeconomic requirement to restrain public

borrowing. Financing constraints spill over to industries' investment programmes and lead to problems of allocation. The public sector crowds out the private sector.

The claims of parastatals may be justifiable in commercial terms but not at times when viewed against total public expenditures. There are numerous other checks and restrictions at a more micro level that are needed to preserve public accountability for the use of public money. For Ghana, there are additional problems associated with poor financial records, scarce managerial talent and skilled labor. In Ghana as in other countries, public sector employees have been very successful in gaining advantages for themselves in terms of more employment and/or higher wages by exploiting their unique position. If the enterprise costs are greater than revenues, the difference is made up by the COG.

Both developed and underdeveloped countries are facing the budget draining activities of parastatals and moving toward privatization in order to improve economic efficiency and foster more competition [United Kingdom, 1985]. The benefits of privatization accrue to customers, employees and the macroeconomy. Customers pay lower prices and have a wider choice and better service and generally benefit from the greater efficiency. Private companies are more responsive to changing customer demands and are more innovative in introducing new products and services. Employees have more chance to receive higher pay for a more productive effort. The macroeconomy receives a higher return on capital and can no longer take sources from other sectors of the economy but must compete for funds in open capital markets or other sources of finance.

Currently, agricultural SOEs responsible to MOA include:
Food Distribution Corporation
Food Production Company
State Farms Corporation

State Fishing Corporation
Ghana Oil Palm Development Corporation
Grains and Legumes Development Board
Bast Fibres Development Board
Cotton Development Company
Ghana Seed Company
Ghana Rice Production Company
Pomadze Poultry Enterprise
Kwahu Dairy Farm
Ejura Farms Ltd.
Farmer Services Company, Upper Region
Farmer Services Company, Volta Region
Irrigation Company, Upper Region
Irrigation Development Authority

Two other agricultural SOE's are responsible to the Ministry of Industries, Science and Technology:

Ghana Sugar Estates Ltd.
Ghana Rubber Estates Ltd.

As Ghanaian agriculture has large and important linkages to the rest of the economy, the benefits of privatization in Ghanaian agriculture aids economic activity elsewhere in the economy by providing cheaper inputs and creating demand for other goods and services. Experience in Ghana and other countries consistently indicates that parastatals perform relatively poorly in terms of their competitive position, use labor and capital inefficiently, and are less profitable.

For all the reasons given above Ghana's new strategy stressing the export of agricultural agro-industrial products based on comparative advantage and utilizing the private sector is appropriate and timely, given the recent improvements in the price policy environment. Privatization of the agricultural parastatals represents a major nonprice policy that can improve Ghanaian farm productivity and income.

Auctioning Import Licenses

The MOA is concerned about whether the auctioning of foreign exchange is allowing enough agricultural inputs into the country. The auction should remain and all efforts should be made to reduce the two-tier system and make all users of imports bid for the inputs at the appropriate price. But it is important at the same time to prevent further distortions throughout the system. For example, the Export Promotion Council's recent efforts to encourage nontraditional exports involved giving 10 percent loans to the large exporters. If continued, such action could undermine the whole effort to establish an export-biased agrosystem using appropriate technologies consistent with Ghana's factor proportions.

Efforts are being made to improve the auction. But more effort should be made to dismantle the agricultural SOEs because they are economically inefficient and do not respond to price signals as quickly as the private sector. As a result, marketing important inputs often lags. A correctly functioning auction and an economically efficient private sector marketing system is a cure for the problems of the current parastatal system.

Cooperation of the Ministry of Agriculture

A major issue for future USAID involvement in agriculture is MOA support for past USAID projects and programs in agriculture. Specifically, as of early 1988 the MOA has still not come up with a feasible scheme to privatize the Ghana Seed company, a parastatal developed with USAID funding. For illustration, a former USAID Country Development Strategy Statement [USAID, (1983, p.9)] points out that

In the agriculture sector the primary private sector initiative involves the continued effort to promote the "privatization" of the Ghana Seed Company as a viable

commercial enterprise. The evolution of the GSC from a unit in the Ministry of Agriculture to its present parastatal status (and with future prospects for joining government/private ownership) has been largely successful thus far. The company is operating without government subventions and with minimal government involvement in its management functions. Additionally, the GSC is dealing entirely with private farmers for the production of certified seed. We will also continue to encourage the conversion of state farms to commercially operated ventures. The Government is receptive.

After more than 5 years, efforts are still being made to privatize the GSC and state farms. In addition, the recent Performance of the Agriculture Sector 1987 (MOA, 1987) was not critical of the parastatals and did not indicate any need to privatize despite the recent GOG and World Bank efforts supporting privatization.

In addition the document (MOA, 1987, pp. 65-6) is critical of some of the most important and fundamental elements of the ERP:

Currently, the structural adjustment program for agriculture being implemented calls for de-regulation, liberalising trade, privatising and allowing greater freedom to market forces, thereby minimizing the degree of intervention. However, in Ghana the prescribed set of policies in their unmodified form is creating constraints and difficulties and having perverse effect [sic] upon the agricultural production environment. In particular certain second generation adverse effects are clearly visible and these center around four main policy instruments which the government is using to exert significant influence upon the agricultural production environment:

- i. Government annual budget;
- ii. The auction system;
- iii. General liquidity of the banking system; and
- iv. Credit/interest rate.

Discussion of these problems indicate less than full MOA support for the ERP. This is to be expected because of the established interests and power bases associated with the parastatal system. The MOA is also responsible for supervising the operations of eighteen agricultural state owned enterprises (SOEs) which are engaged mainly in production and marketing. Apart from Cocoa Board, the other institutions serving agriculture are area-based development projects and research institutes. Conditionality may be necessary if USAID supports further efforts to privatize agricultural SOEs and/or develop institutions specializing in agricultural credit.

VII. SUMMARY

Impact of Economic Reform Program on Agriculture

In 1983, GOG policies and mismanagement had brought Ghana's economy to a halt. Stores were empty. Vehicles were sparse on the streets because of extreme shortages of fuel, tires and parts. Dilapidated rail and roads slowed internal transport to a crawl. Exchange rates were tremendously overvalued. Cash crops were being smuggled through the Ivory Coast and Togo removing large volumes of foreign exchange from the Ghanaian treasury. Failure to pay off arrears and lack of reserves led to cutting off imports resulting in economic isolation from the rest of the world. The escalating budget deficit was being exacerbated by increasing individual deficits of more than 200 parastatals. Parastatals remain Ghana's major foreign exchange users and continue to contribute to mounting balance of trade problems. Domestic and particularly foreign sources of finance had dried up. Printing money to finance the budget deficit had led to triple digit inflation. The economic structure was based on an inward looking import substitution strategy dependent on government parastatals and operating under distorted government price signals that had led to an inefficient and inappropriate allocation of resources.

Within this inherently unstable economic framework, the Government of Ghana and the World Bank/IMF with the backing of USAID and other donors constructed a program aimed at providing short-run foreign exchange support and medium-run structural adjustment support on condition that Ghana reform its policies along certain guidelines. Future support would depend on adherence to the agreed upon conditions.

The Economic Reform Program has been effective and consistent. Improved performance in agriculture due to the policy reforms and improved weather conditions have been the main reason for its extraordinary success. The key policy reform was the devaluation of the cedi and the development of the auctioning program for import licensing. All segments of Ghanaian society agree that the impact was successful for the economy, although those groups with earlier access to goods and services at subsidized prices were hurt economically over the short run by the program. This policy was augmented by reduction of import controls and raising farm-gate prices of products exported by the government.

At the macroeconomic level, monetary and fiscal restraint and basic reform has lowered the budget deficit from 5 percent in 1982 to 2 percent in 1985. A small surplus was registered in 1986 and a similar surplus is projected for 1987 [Manarolla and Vordzorgbe (1987, p. 18)]. The total external debt as a ratio to exports of goods and services fell from 43 percent in 1983 to 38 percent in 1986 excluding IMF purchases and remained unchanged when IMF repurchases are included. Total debt relative to exports of goods and services fell from 436 percent in 1983 to 300 percent in 1986. These represent a leveling off and improvement over previous trends and are largely due to improvements in agricultural performance and the rising price of cocoa.

Increases in the prices of key industrial crops, particularly cocoa, have raised foreign exchange earnings of traditional exports and the new GOG strategy has created definite market signals to businessmen of agriculture's top priority within the current administration. The impact on income distribution, basic needs, nutrition levels, production, trade balance, foreign exchange, employment, small scale farming have been positive and substantial. At the microeconomic level,

farmers' welfare has improved substantially due to higher incomes from higher farmgate prices, and accessibility of their products to world markets. The main burden to increasing productivity and welfare remains the government's continued inefficient operations. Specific examples of the positive impact of the ERP in Ghana are many.

- . Production of cash and food crops has increased in response to high real farmgate price primarily through increased acreage and not increased productivity. Increased farmgate prices have led to substantial production rises through increased land use rather than use of new techniques or modern inputs such as fertilizers, insecticides, and machinery because of the limited credit availability associated with its underdeveloped financial infrastructure.
- . Diversification of cash crops is substantial and rising. Pineapples have increased three fold in two years.
- . Medium sized farmers (with 50 to 300 acres) and traders are often supplied by small farmers and have been able to adapt to the changing economic conditions and export to overseas markets.
- . Rural wages doubled in two years whereas equivalent government wages and the general price index have less than doubled (i.e. 150 cedis per year in 1985 to 300 cedis per year in 1987 for farm workers, compared to an increase from 90 cedis to 140 cedis per year during the same period for urban wages.)
- . Substantial reverse migration has taken place from Accra and the market towns to the farm. This relatively recent phenomena has intensified over the last several years. Some displaced workers released by the government (an estimated 15,000 by the end of 1988) appear to be returning to the rural areas. More dramatic is the recent post ERP movement of urban workers into weekend farming. Urban workers are buying land or long term leases at low rates since land is so abundant. They manage and/or work the farm with their families on weekends to grow cash crops to augment their urban salaries. The movement is widespread from doctors, professors, government bureaucrats and

teachers to low skilled workers responding to the increased markets for cash crops.

Employment has increased substantially primarily in the private sector. Because of lack of spare parts, many bush-taxi drivers were unemployed in 1983 or had less productive and lower paying forms of employment.

The earlier massive overvaluation of the cedi was greatly improved. Small farmers were most adversely affected since they had little access to imported consumer goods or farm inputs and equipment. The overvaluation curtailed export markets particularly for small farmers.

Excessive profit margins of large plantation holders were curtailed because their inputs (e.g. in 1983 they were about 10 percent of real costs) are no longer greatly subsidized.

Lowering price distortions has improved the allocative efficiency of agricultural resources. More resources are being allocated to agriculture vis-à-vis other sectors. Resources within agriculture are being allocated more efficiently.

Profits for small and medium sized farmers and traders are encouraging them to seek out export markets.

Higher farm wages and farmgate prices have led to substantial real income increases for small farmers.

Nutrition and caloric intake have almost certainly improved with increased farm incomes.

Rural health status has probably increased because of improved nutrition and access to imported medicines.

Removal of subsidized credit and input prices has led to structural change among large plantations to improve the technical and economic efficiency. They are less likely to waste inputs and machinery. They are more careful of their choice of land sites for cash crops.

Improved transportation and communication, from just having spare parts to service

existing systems, permits more rational economic decisions that provide a stabilizing influence on prices of food crops.

- . Farmers are now more self reliant in food than before, even when they have shifted to cash crops, because they can buy more food with their cash crop earnings than they could have produced if they had spent more of their time producing food crops.
- . The quality of life has made a quantum improvement because of higher incomes and access to imported consumer commodities.
- . There is now a stronger basis for developing future sources of government revenues.
- . Increasingly diverse consumption bundles are now available to farmers who in 1983 could not buy any inputs imported legally.
- . Smuggling cocoa into Togo and Ivory Coast has declined.
- . Efficiency of the public sector price control mechanism has improved since the GOG only deals with 8 crops rather than hundreds.
- . Basic physical infrastructure and services have improved due to access to foreign exchange.
- . Attitudes of businessmen have improved because the government is providing leadership and direction to the economy by showing that agriculture has an important role in Ghana's economic future.
- . Foreign exchange has enhanced the quality of life by allowing Ghanaians to buy spare parts to fix machinery for use both at home and at work.

Appropriateness of USAID Strategy and Goals

The principal purpose of USAID/Ghana's assistance program is to support Ghana's Economic Recovery Program, which is now in its second phase. The goals and a discussion of their consistency with GOG objectives is given in Chapter VI.

This program has been effective and timely. Through it, USAID/Ghana has been part of a team of donor countries and organizations that has within four years transformed Ghana from a complete state of collapse into a dynamic economy. At the macroeconomic level, efforts to stabilize the country are progressing well as indicated by the declining budget deficit as a percentage of GDP and the declining trade balance as a percentage of GDP or export revenues. Restructuring is taking place at all levels of agriculture. The private sector appears to be responding faster by switching technologies to take into account the new realities.

For large farmers, key inputs are less likely to be highly subsidized causing them to restructure away from intensive use of imported machinery and inputs. For the small farmer, despite an economically inefficient parastatal marketing system, inputs are now available because of the import auction. Prices are high, but key imports are available and can be obtained by the most farmers and applied to their most productive uses. Credit is expensive as it should be. Extension workers in many areas are held in low regard but projects like Global 2000 are changing that attitude. New seed varieties are being used, but there is much room for improvement.

Restructuring the economy with an outward orientation and reliance on the private sector is critical to successfully avoid a return to the depression that hit Ghana in the early eighties. Privatization increases productivity because the private sector is more economically efficient than the public sector. This is particularly true since the private sector responds to price signals more readily than the public sector and thus better complements the improved price policy environment.

Public parastatals are also the major users of foreign exchange, because they often get top priority access at subsidized prices and with easy and subsidized credit. Private sector activity is the main generator of foreign exchange. Thus efforts to privatize the more than 200 GOG parastatals is probably a most effective way to increase productivity and economic welfare in Ghana.

Recommendations

Agriculture should be given top priority in USAID's Ghanaian program for the reasons given in Chapter V. First, Ghana has a short- and long-run comparative advantage in many agricultural food and cash crops. Second, agriculture has a primary position as a source of employment, income, production earnings, export earnings, and foreign exchange. Third, increased farm incomes provide increased demand for final consumption goods and services. Fourth, agriculture has important forward and backward linkages on the supply side to other sectors of the macroecon

The goals of the USAID strategy are excellent and appropriate for Ghana, although the food self sufficiency goal should be clarified to prevent excessive allocation of resources to inefficient import substituting food production (i.e. rice) at the expense of higher yielding export oriented cash crops (i.e. cocoa). Ghana is more than capable of developing substantial foreign reserves to tide them over during lean years.

Top Priority to Privatization. In the improved pricing climate, activities in almost all nonpricing areas have a higher expected economic payoff. But the public sector does not appear to respond to the improved price signals as quickly and efficiently as the private sector. Continued pressure must be applied to improve the price policy. Current high inflation

always has the potential of undermining export markets if the system is not flexible enough to take into account inflation. Additional pressure is needed to continue removing the subsidies and other price distortions.

A major lagging area in agriculture is privatization. The public sector's crowding out of the private sector remains a major stranglehold of the economy. The government needs to leave economic activities better done by the private sector and concentrate on indicative planning of the private sector.

Others with potentially high economic payoff include:

- (1) Developing financial institutions and markets. See Table - Annex C dealing with Global 2000. Credit remains the critical input for improved agricultural productivity.
- (2) Rehabilitating secondary and tertiary market roads would have a high payoff.
- (3) Promoting nontraditional exports including an air cargo facility for agricultural horticultural exports and assisting small and medium farmer efforts to market export crops.

There are numerous other projects with expected high economic rates of return given the new improved economic climate. But projects will require more direct AID manpower support than programs. Avoid any activity which would create another government parastatal or enhance funding levels of an existing parastatal.

The economic climate has been altered so dramatically, that there is great need for economic information and dissemination of

that information. There is a need to establish a system of collecting and disseminating regional prices of agricultural commodities.

There is also need for a detailed supply and demand analysis of the most important food and cash crops. The analysis should examine in detail the economic costs of alternate price and nonprice policies on key Ghanaian crops. This could be carried out through use of consultants to the MOA. This would also require upgrading the statistical base for monitoring Ghanaian agriculture. (See Annex A for the recommended research analysis.) Additional expenditure of funds on agronomic research is not recommended, but further analysis of the institutional constraints on the extension system and private marketing of inputs and outputs would be appropriate.

ANNEX A

SUPPLY AND DEMAND POLICY ANALYSIS

The following type of analysis carried out by Dr. Dapahh (1987), if done properly, can describe explicitly the economic costs to Ghana of bad pricing policies. Prices distortions have been lowered substantially but there remains great room for improvement. But given the interest and the need for such analysis, it is recommended that consultants be sent to aid the Ministry of Agriculture with policy analysis using these techniques. The data while not perfect is adequate for a solid and useful policy analysis. The analysis would also indicate to the Ministry of Agriculture the type of data needed to continue analyzing Ghanaian agricultural policies and their impact on macroeconomic goals. The following represents some preliminary notes and a brief evaluation of the work of Dr. Dapaah. He is using the right approach but his analysis could be more comprehensive. These problems are easy to correct.

Dapaah (1987) examines the economic impacts of recent changes in economic incentives for rice imports and cocoa exports in Ghana and correctly found efforts to correct disincentives are most noticeable on (1) the market for foreign exchange and (2) optimal prices to producers of industrial and export crops. Before ERP, the exchange rate was excessively overvalued and industrial crops were taxed over the above the indirect taxation of the exchange rate distortion. The following outlines the economic costs in the cocoa and rice markets of these poor economic policies.

Rice Imports

Roughly 60 percent of Ghanaian total domestic demand between 1970 and 1985 was imported. Using Dapaah's figures for 1985 of $P_d = \text{US } \$256$ per ton valued at the parallel exchange rate of cedi

160 = \$1, the undistorted domestic price, P_d = cedi 40,960 per ton using a US \$40/ton margin. Valued at the overvalued exchange rate of cedi 90 = US \$1, the distorted domestic market price is cedi 23,040 per ton. At the subsidized price, the 1985 domestic demand for rice was estimated at 100,200 tons based on per capita demand of 8 kg. Domestic production in 1985 was only 35,700 MT due to the low producer price. Thus, imports were 64,500 MT. Commercial imports amounted to 20,600 MT while the remaining 43,900 MT were provided through food aid and other donations.

Using standard supply and demand welfare analysis, Dapaah estimates the increase to consumers though reduced prices and higher consumption levels quantity was cedi 1,586 million. The loss to producers in lower prices and decline in quantities sold was cedi 739 million. The loss to taxpayers in the form of foregone government revenues was cedi 1,156 million leading to a net economic loss to society of cedi 309 million.

Carrying Dapaah's analysis further, the cedi 1,156 million loss to taxpayers represent lost foreign exchange that must be made up by Ghanaian treasury and food aid. Other effects not calculated include the impacts on trade balance, food self sufficiency and the indirect linkages to the rest of the economy associated with declining production of rice.

Cocoa Exports

Dapaah uses welfare analysis on cocoa, Ghana's main export crop. In 1985/86 the farmers' price was cedi 85,000 per ton or 47 percent of the average world price of US \$2000 per ton valued at the official exchange rate of cedi 90 = US \$1. At the parallel rate, farmers would have been paid cedi 150,400 per ton. At the lower distorted price, farmers produced 230,000 MT of cocoa in 1985/86. Assuming a supply elasticity of 0.2 [Bateman (1974)], removal of the implicit tax associated with the exchange rate distortion would have led to quantity supplied of 265,390 MT

for an increase of 35,390 MT. Demand for cocoa is estimated at 3,600 MT based on a FAO (1971) estimate of 0.3 kg per capita for Ghana. Using a demand elasticity of - 0.8 based on the small share of consumption expenditures spent on cocoa which is regarded as nonessential with several substitutes, quantity demanded declined from 2,216 MT to 1,384 MT. The increase in consumer surplus is estimated at cedi 163 million; the economic loss to cocoa producers is estimated at cedi 16,199 million and the gain to taxpayers in terms of increased government revenues is cedi 14,806 million. The net economic loss to society is cedi 1,230 million.

There are problems with the Dapaah analysis. The domestic farmgate price of rice is not lower than the world price. Supposedly producers were receiving production subsidies because farmgate prices were substantially above the world price. Such factors are characteristic of Ghanaian agriculture and are not adequately handled in the analysis.

Evaluation

This analysis is a beginning attempt at welfare analysis. The findings need to be scrutinized further. The analysis needs more development. It needs to use a range of supply elasticities. It needs also to realize there is a "shut down" low price when farmers will not produce unless by force. The analysis needs to use labor productivity figures (i.e. kg per man-year to translate production changes into employment changes) to calculate employment impacts, migration impacts, etc. Also discussions are needed on the indirect production and employment changes in the context of an input/output framework.

One also can indicate in the analysis the impact on balance of payments and foreign exchange. Taxes can be more explicitly included in the analysis. Loss of dynamic factors due to the distortions are not considered. The analysis should point out

that other crop losses make the economic losses only a fraction of the overall macroeconomic losses caused by such economic behavior. The analysis needs to be expanded to include other factors that effect demand (tastes, prices of substitutes, prices of complements, income levels, etc.) and supply (i. e. weather, fertilizer availability and price, insecticide availability and price, research and development, availability on new more productive varieties and technologies, prices in Togo and the Ivory Coast, irrigation, etc).

ANNEX B

GLOBAL 2000¹

An exciting agricultural program in Ghana is now the Global 2000 program promoting sorghum production in Ghana's Upper West region. The program is increasing yields and putting more cash in the pockets of small farmers in one of the driest poorest regions of Ghana.

Sorghum is the main staple of the region and is used to brew pito and could become a substitute for imported malt in local beer brewing. The secret to the success is what has been called the "simple technical package of fertilizer, good seed and adequate plant population--the hallmark of the new technology introduced by Global 2000."

Global 2000 is being sponsored by former President Jimmy Carter as part of his "Food for Peace Campaign" and is financed by Japanese shipbuilder and multi-millionaire, Ryochi Sasakawa, and Pakistani banker, Ahmed Abedi who has branches of his bank for Credit and Commerce in 126 countries.

The project was brought to Ghana during the visit of President Carter in February last year. The program began in Damongo in the Northern region and Wa in the Upper West region in June 1986. In Damongo, a new variety of maize, laposta, was used. The program now is using the dobidi variety to increase yields from 6 to 18 bags per acre.

In the latter part of 1987, some 75 farmers are carrying out test production on plots of one acre in Damongo and the farmers

1. The discussion in this section is adapted from an article by Edward Ameyibor in People's Daily Graphic, Saturday, January 9, 1988.

are expecting very high yields. Many new farmers are planning to sign onto the program.

In the Upper West, 2 varieties of sorghum were used. The first, the White Bawku variety, is tall and prone to lodging. The second, the flamida, is a high yielding variety from the International Institute of Crop Research for Semi-Arid Tropics (INCRASAT), Patencheru, India. It was adapted to local conditions by the Agricultural Research Station, Nyankpala, Northern Region. The plant is short, sturdy and wind resistant. Farmers are now harvesting an average of 10 to 13 bags an acre of flamida and 8 to 10 bags of Kawku White variety, compared to usual yields of 2 bags per acre on both varieties in the past. The project has potential to be a cash crop, whereas in the past it has been primarily a subsistence crop. Sorghum has been used in Nigeria to replace imported malt in brewing beer and could be used for this purpose in Ghana.

The program selects certain farmers whom it teaches its technology involving the use of an improved seed, fertilizer and correct plant spacing to achieve maximum results from an overused and infertile soil. The fertilizer is applied the same day close to the seed instead of the present system of broadcasting which mostly feeds weeds. The farm is then cleared once or twice. The spacing of sorghum is 30cm by 60cm.

Each acre has a plant population of about 40,000. The project started with 20 farmers in the first year and now has more than 1,000 farmers. The education is the result of years of research in many countries and is passed to farmers mainly through the Ghanaian Agricultural Extension officers. The soil fertility expert of the project, Dr. Chong Woo Hong, claims "a lot of knowledge from the research stations and universities are locked up in shelves or are gathering dust in some offices....You always see there is a large gap between the crop performances on the farms of research stations and on farmers' lands. This is

the problem of extension, until it is properly directed to create the right impact, the farmers will not benefit from the expensive research results. When they pick it up, others will copy it. There will be innovations by farmers too".

Dr. Hong organized a course for the extension officers using slides. They quickly spread the message to the rural areas under Dr. Hong's supervision.

At Gorupi village 40 kilometers outside Wa, there are two groups of Global 2000 farmers that want to form an association. The first group planted the Bawku White variety, applying fertilizer purchased with a loan from the Co-operative Bank and got an average yield of 6 to 10 bags per acre--about 3 to 5 times more than normal. The second group obtained between 10 and 13 bags of flamida sorghum, 5 to 6 times higher than usual.

Officials say the bank had a 100 percent recovery of its loans from all the 20 farmers last year and urged other banks to assist. The critical input is now credit. It costs about 7,000 cedis to prepare the land, obtain seed and fertilizer for an acre of sorghum. With an average yield of 10 bags an acre, the farmer will be more than able to pay, since a bag sells around 3,400 cedis. The farmer need only 2 bags to pay his production cost and the rest is profit since he uses primarily family labor. A few more bags will also be sufficient as food for an average farm family of six.

The program's success is "hinged on the availability of inputs like fertilizer, seeds and credit at the right time...Now that the farmers are enthusiastic and are adopting the technology the banks must move in with credit and the administration must ensure stable prices", according to Dr. Hong. "Only the Co-operative Bank has thrown its weight behind us. But there are other banks. They must all come in".

Table C-1
Ghanaian Exchange Rates, 1970 - 1986

Year	National Exchange Rate Cedis/Dollar		Ghana CPI 1970-100	MOV Index 1970-100	Real Exchange Cedis/Dollar	
	Official	Parallel			Official	Parallel
1970	1.02	1.64	100	100	1.02	1.6
1971	1.03	1.75	109	106	1.00	1.7
1972	1.32	1.64	120	115	1.26	1.5
1973	1.16	1.49	141	134	1.10	1.4
1974	1.15	1.73	167	162	1.12	1.6
1975	1.15	1.99	217	180	1.12	1.6
1976	1.15	2.92	339	184	.96	1.6
1977	1.15	9.20	734	202	.62	1.5
1978	1.51	8.96	1270	231	.27	1.6
1979	2.75	15.56	1962	262	.37	2.0
1980	2.75	15.87	2944	288	.27	1.5
1981	2.75	26.25	6374	289	.12	2.1
1982	2.75	61.67	7795	285	.10	2.2
1983	3.45	76.58	17373	278	.06	1.0
1984	35.34	135.00	24269	273	.04	1.5
1985	60.00	160.00	26606	275	.62	1.6
1986	90.00	160.00	31930			
(Jan.)						
Sept.						
1987	120.00	180.00				
April	156.00	220.00				
1987						
Aug.	163.00	250.00				

Source: Exchange rates (both official and parallel)
Pick's Currency Year book and Dapaah (1987)

Table C-2. Comparison of International and Domestic Commodity Prices: Ghana

Year	Official Exchange Rate (c/\$)	Parallel Exchange Rate (c/\$)	Rice			Maize			Cocoa Beans			Palm Oil					
			FOB (\$/t)	Dom/ (\$/t-CER)	Percent FOB	FOB (\$/t)	Dom/ (\$/t-CER)	Percent FOB	Dom/ (\$/t)	Dom/ (\$/t)	Dom/ (\$/t)	Dom/ (\$/t-CER)	FOB				
(1)	(2)	(3)	(4)	(4)-(3)=(5)	(6)	(6)-(3)=(7)	(8)	(9)-(8)=(10)	(11)	(11)-(8)=(12)	(13)	(14)	(14)-(13)	(16)	(16)-(15)		
1970	1.02	1.64	144	254	183%	164	114%	58	115	196%	71	122%	260	495	150%	308	118
1971	1.03	1.75	129	270	209%	159	123%	58	117	199%	69	117%	261	554	212%	326	125
1972	1.32	1.64	147	255	194%	229	156%	55	131	234%	105	188%	217	571	253%	450	212
1973	1.16	1.49	350	389	111%	303	86%	98	159	153%	124	127%	378	875	232%	631	180
1974	1.15	1.73	542	431	80%	287	53%	132	175	132%	116	98%	669	1021	153%	679	101
1975	1.15	1.99	363	591	163%	342	94%	120	217	182%	126	105%	434	1437	331%	831	191
1976	1.15	2.91	255	1213	477%	479	188%	112	496	441%	196	174%	467	2105	515%	832	205
1977	1.15	9.20	272	1716	631%	244	79%	95	1035	1086%	129	136%	530	3697	937%	462	67
1978	1.51	8.95	368	1775	482%	299	81%	101	804	798%	135	135%	600	6535	1089%	1101	164
1979	2.75	15.56	334	1110	332%	195	59%	116	625	542%	111	96%	654	2428	677%	783	120
1980	2.75	15.97	424	1003	692%	520	120%	125	1506	1202	261	208%	584	6829	1169%	1182	203
1981	2.75	26.25	483	4309	992%	451	93%	131	2819	2155%	295	226%	571	10676	1570%	1118	196
1982	2.75	61.67	293	7992	2728%	356	122%	109	2506	2659%	130	119%	445	18917	4251%	844	190
1983	3.45	76.58	277	19183	6925%	864	312%	136	11181	8222%	504	370%	501	28402	5669%	1280	255
1984	35.34	135.00	252	2042	810%	534	212%	136	662	486%	173	127%	729	4029	553%	1055	145
1985	60.00	160.00	216	933	432%	350	162%	112	340	303%	127	114%	501	2169	433%	814	162

Notes: International rice price = FOB Thailand
 International maize price = FOB Gulf, US
 International palm oil price = CIF Europe (Malaysia)

TABLE C-3

Producer Prices: Ghana
(Cedis/Ton Deflated Using Rural CP)

Year(Current Cedis)(Constant Cedis) Index			
	Cocoa Beans	Seed Cotton	Tobacco	Maize ^a	Cocoa Beans (70=100)	Seed Cotton (70=100)	Tobacco (70=100)	Maize (77=100)
1970	299	180	610		120	100	100	
1971	293	180	960		90	92	109	
1972	293	180	1110		82	84	115	
1973	366	180	1180		88	71	104	
1974	439	220	1190		90	75	90	
1975	561	220	1770		90	58	105	
1976	602	770	1860		61	129	69	
1977	788	770	2100	240	35	59	36	100
1978	1333	1320	3560	800	35	58	35	191
1979	2743	1320	5850	1000	46	37	36	150
1980	4000	1320	10730	1630	41	23	41	153
1981	4000	1320	25000	3000	20	11	46	133
1982	12000	1320	25000	5000	49	9	37	181
1983	12000	10710	80000	18000	21	31	52	284
1984	20234	14000	80000	18000	26	30	38	205
1985	56000	25000	125000	20000	66	49	54	210
1986	85000	38000	142000	26000				

Source: Ministry of Agriculture and Depaah (1987).

^aAGFDC recommended purchase price.

Table C-4

Area Under Important Crops: Ghana Versus Northern
and Upper Regions (1979) FAO.

Crop	Ghana (000 Hectares)	Northern and Upper Regions(000 Hectares)	% of Ghana's Total
Maize	358.0	144.5	40
Rice	105.0	49.4	47
Millet	250.0	249.5	100
Guinea Corn	211.0	208.5	99
Cassava	219.0	-	-
Cocoyam	159.0	-	-
Yam	105.0	65.4	62
Plantain	139.0	-	-
Groundnuts	92.0	80.0	87
Coconuts	21.0	-	-
Oil Palm	157.0	-	-
Beans and Peas	121.0	95.2	79
Tomatoes	27.0	15.0**	55
Pepper	31.0	9.0	29
Okro	24.0	10.0	43
Tobacco	10.0	-	-
Sugar-cane	9.0*	-	-
Cotton	10.0*	N/A	-
Rubber	13.0*	-	-
Total	2,060.0	918.4	

Source: Computed from several sources including Ministry of Agriculture, Quarterly Digest of Statistics (1982) p.4 and "Ghana: Policies and Programs for Adjustment." Report No.4702 - GH (1983) p.12.

Note: N/A Not Available
* 1980 figures
** Estimated
- Nil or insignificant.

TABLE C-5

**Production of Major Crops: Ghana Versus Northern
and Upper Regions 1979 (000 tons)**

Crop	Ghana (000 Hectares)	Northern and Upper Regions(000 Hectares)	% of Ghana's Total
Maize	380.0	108.2	28
Rice	93.0	53.7	58
Millet	149.0	149	100
Guinea Corn	158.0	157	99
Cassava	1,759.0	-	-
Cocoyam	749.0	-	-
Yam	602.0	279	46
Plantain	817.0	-	-
Groundnuts	107.0	83.5	78
Coconuts	159.0	-	-
Oil Palm	1,012.0	-	-
Beans and Peas	11.0	8.6	78
Tomatoes	125.0	69	56
Pepper	92.0	26	28
Okro	110.0	40	36
Sugar-cane	272.0*	-	-
Cotton	2.4*	N/A	-
Rubber	9.0*	-	-
Tobacco	.45*	N/A	-
Total	6,608.5	926.0	

Source: Computed from Several sources including Ministry of Agriculture, Quarterly Digest of Statistics (1982) p.4 and "Ghana: Policies and Programs for Adjustment." Report No.4702 - GH (1983) p.12.

Note: N/A Not Available
 * 1980 figures
 ** Estimated
 - Nil or insignificant.

TABLE C-6

Summary of Profitability and Comparative Advantage Indicator

Commodity	Yield (kg)	Financial Returns per Hectare (cha)		Financial Returns to Family Labor (c/man-day)		NPC ^a				DBC ^a			
		1985	ASRF ^b	1985	ASRF ^b	(1) ^c	(2) ^d	(3)	ASRF ^e	(1) ^f	(2) ^g	(3)	ASRF ^e
		1985	ASRF ^b	1985	ASRF ^b	1985	1985	1985	ASRF ^e	1985	1985	1985	ASRF ^e
Rice													
Traditional	1000	34639	15669	868	348	.75	1.53		4.58	.37	.91		2.73
Improved	1400	48948	24892	979	479	.82	.37		6.68	.32	1.07		4.05
Advanced	2000	69814	38823	2182	681	.91	2.37		10.55	.11	.88		8.75
Mechanized	1000	11009	2620	1573	64	1.88	-3.12		neg	.88	-3.98		-7.72
Irrigated U/scala ^h	3500	65316	93438	797	1139	.79	2.25		18.03	.52	1.74		-7.04
Irrigated S/scala ^h	3500	120901	95877	1474	1169	.80	2.05		10.74	.17	.84		4.94
Malta													
Improved - Drip	1800	5289	24038	58	253	.03	1.07		2.44	.18	1.03		1.27
Improved - Misc.	1800	1289	24038	14	253	b	.99		2.49	.18	1.23		1.39
Advanced - Drip	2400	7088	34757	64	318	.01	1.16		2.58	.15	1.08		1.21
Advanced - Misc.	2400	3088	34757	28	318	b	1.11		2.60	.15	1.23		1.32
Groundnut													
Traditional	800	22259	14764	171	114			1.58	3.02			.69	1.45
Improved - Drip	1200	35031	24014	258	175			1.84	2.91			.54	1.00
Improved - Misc.	1200	35031	24014	258	175			1.82	3.01			.50	1.09
Cotton													
Semi-improved	550	6803	3514	130	27	.64			.38		.13		.62
Improved - Drip	1000	4337	9074	52	40	.63			.31		.11		.61
Improved - Misc.	1000	1753	9074	21	40	.65			.23		.10		.62
Tobacco													
Flue-cured	1200	100553	15544	370	94	.20	.25		.58	.04	.08		.39
Oil Palm													
Cultivars	3000 ^a	35312	37130	284	2475	1.41	1.41	1.57		b	b		.14
Cocoa													
Reparted	500	15508	4427	859	200	.18	.20	.27				.14	.19
Rehabilitated	175	4215	1065	468	118	.18	.20	.27				.12	.22

a Reproduction period by 10% of plantation (30 years) in year 9 terms (1st year of full production)

b Initially on 1/2 ha of land

c Agricultural Finance Corporation (AFIC) (World Bank)

d Nil Production (N.P.)

e Domestic Finance Corporation (DFC)

f Financial Corporation (FC)

Source: Ministry of Agric, Performance of the Agricultural Sector 1987
September 1987 and based on World Bank analysis.

Table C-7
 Traditional and Potential Yields
Under Prevailing Ecological Conditions in Ghana

	<u>Traditional</u> (kg/ha)	<u>Progressive</u> (kg/ha)	<u>Irrigated</u> (kg/ha)
<u>Food Crops</u>			
rice (paddy)	1,000	2,000	3,500
maize	1,200	2,400	-
sorghum	500	1,000	-
Millet	400	800	-
cassava	5,000	7,000	-
yam	5,000	8,000	-
groundnut (in shell)	800	1,500	-
cowpea	200	800	-
<u>Industrial Crops</u>			
cotton (seedcotton)	500	1,000	1,500
tobacco (flue-cured)	250 750	-	-
sugarcane (cane, ton/ha)	20	35	65
oilpalm (oil)	800	2,000(estate)	-
<u>Export Crops</u>			
cocoa	250	500	-
coffee	250	500	-
rubber (dry rubber)	400	1,000(estate)	-
coconut (copra)	1,000	3,000	-

Notes:

- (1) Yields of tree crops refer to non-estate crops, if not otherwise stated.
- (2) Yields of annual crops refer to mono-cropping.
- (3) Yields for irrigated crops have been mentioned for rice, sugarcane and cotton only, being crops with the highest potential for irrigation.
- (4) Anticipated yields for progressive farming and for estates are mission estimates and, where possible, related to experimental yields (70%).
- (5) Maize yields are for transitional and forest zones; yields for savannah areas would be 15-25% lower.

Source: World Bank estimates as presented in Agricultural Sector Review.

Table C 8
Crop Production: Ghana (000 Tons)

Commodity	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Maize	481.6	465.4	492.4	426.8	485.7	343.4	286.0	274.0	218.0	380.0	382.0	378.0	346.0	172.0
Sorghum	185.9	172.7	152.4	166.6	176.8	135.1	189.0	131.0	121.0	158.0	132.0	131.0	85.0	56.0
Rice	48.8	54.9	70.1	62.0	73.2	71.1	76.0	109.0	108.0	93	78.0	97.0	36.0	40.0
Millet	141.2	130.1	98.6	108.7	154.4	121.9	144.4	125.0	93.0	149.0	82.0	119.0	76.0	40.0
Yams	909.0	909.0	678.8	605.9	849.5	709.2	574.2	535.0	544.0	602.0	650.0	591.0	588.0	866.0
Cocoyams	1136.0	1136.0	945.0	1325.0	1510.0	1099.4	773.0	722.0	726.0	749.0	643.0	631.0	628.0	720.0
Cassava	2387.8	2387.8	2840.0	2865.0	3606.1	2398.0	1819.0	1811.0	1895.0	1759.0	2322.0	2063.0	2470.0	1729.0
Plantain	1641.0	1641.0	1669.5	2070.8	2024.1	1245.7	1255.6	927.0	940.0	817.0	734.0	829.0	745.0	342.0
Cowpeas	10.6	10.6	9.1	7.4	10.8	10.7	12.1	11.0	8.0	9.0	N.A	N.A	N.A	N.A
Groundnuts	101.6	101.6	89.4	127.0	156.5	110.8	113.0	81.0	83.0	107.0	N.A	N.A	N.A	N.A
Coconut	301.8	301.8	295.8	305.8	306.9	310.9	229.0	152.0	159.0	159.0	N.A	N.A	N.A	N.A
Cocoa	413.0	454.0	407.0	340.0	376.0	396.0	326.0	271.0	265.0	281.0	254.0	220.0	178.0	158.0
Sugarcane	111.8	111.8	145.3	161.2	170.9	204.9	190.0	258.0	272.0	N.A	N.A	N.A	N.A	N.A
Seed Cotton	0.2	0.4	1.3	1.9	2.5	3.0	9.0	11.4	4.5	5.2	3.0	0.7	0.5	0.5
Rubber	0.7	0.0	1.2	1.3	1.8	2.1	2.7	2.7	3.3	3.3	1.7	0.7	0.7	0.5
Tobacco	0.9	1.4	1.7	2.6	3.3	2.3	2.1	0.8	0.8	0.8	0.4	0.5	0.6	0.5
Banana	15.6	15.6	15.6	11.4	8.1	6.8	9.0	4.0	3.0	7.0	N.A	N.A	N.A	N.A
Tomatoes	92.5	92.5	110.6	98.6	101.7	90.4	99.9	103.0	104.0	125.0	N.A	N.A	N.A	N.A
Oranges	129.0	129.0	90.8	128.0	150.4	150.4	51.5	19.0	21.0	N.A	N.A	N.A	N.A	N.A
Garden Eggs	10.1	10.1	21.3	30.5	28.5	28.5	26.0	12.0	12.0	12.0	N.A	N.A	N.A	N.A
Oil Palm (fresh fruit bunches)	696.0	696.0	711.2	782.4	916.5	901.3	280.6	739.0	935.0	1012.0	N.A	N.A	N.A	N.A

Source: Ministry of Agriculture except as noted below.

- (i) Production volume figures for cocoa are reported by the Cocoa Marketing Board.
Production data for cocoa refer to crop years, beginning 1970/71 and ending 1983/84.
- (ii) Production data for rubber are only for Ghana Rubber Estates Ltd. (formerly Mircatone Plantation) which accounts for 75% of total rubber hectareage in the country (9,000 ha out of total 12,000 ha).
- (iii) Production figures for cotton are from the Cotton Development Board.
- (vi) Production data for tobacco are from the Ghana Tobacco Co. Ltd.

N.A = Not available

Table C-9
Trends in Nominal and Real Cocoa
Producer Prices (1970/71 - 1984/85)

<u>Year (Oct 1- Sept. 30)</u>	<u>Total Purchase by GCMB ('000m.t.)</u>	<u>Real Consumer Nominal Producer Price (C/M.t)</u>	<u>Real Cocoa Price Index (1970-100)</u>	<u>Producer Price Index</u>
1970/71	413	293	100.00	100.00
1971/72	454	293	108.94	91.80
1972/73	407	366	118.97	103.60
1973/74	340	436	139.60	106.60
1974/75	376	560	164.29	116.30
1975/76	396	597	209.20	97.4
1976/77	323	747	330.77	77.10
1977/78	271	1,333	720.48	63.10
1978/79	265	2,667	1,258.68	72.30
1979/80	296	4,000	2,004.38	68.10
1980/81	258	4,000	3,229.19	42.30
1981/82	224	12,000	6,761.70	60.60
1982/83	179	12,000	8,283.36	49.40
1983/84	158	20,000	17,702.91	38.60
1984/85		30,000	23,898.36 ^{1/}	42.80
1985/86		60,000 ^{2/}	31,068.61 ^{3/}	65.90.
		90,000 ^{2/}	31,068.61 ^{3/}	98.90

^{1/} Assuming an inflation rate of 35% in 1984

^{2/} Assumed.

^{3/} Assuming an inflation rate of 30% in 1985

Sources: (i) Ghana Cocoa Board, Accra, Ghana

(ii) Central Bureau of Statistics, Accra, Ghana.

(iii) Mission Calculations.

Table C-10
Food Production Per Capita
(1974 - 76 = 100)

1972	100
1983	101
1974	110
1975	102
1976	87
1977	78
1978	75
1979	79
1980	70
1981	66
1982	66
1983	62

Source: FAO Rome.

Table C-11
GHANA

Relative Profitability of Cocoa and Other Competing Crops

Scenario 1a/ Net Return per ha (¢)	Oil Palm	Maize/Cassava		Maize Plaincain/ Cocoyam	Cocoa d/ Planted Rehab		Cocoa e/ Replanted Rehab		Cocoa f/ Replanted Rehab	
		Traditional	Improved							
2,475	37,130	13,274 b/	24,117 b/	26,541 c/	4,427	1,065	19,427	6,315	34,427	11,565
Net Return per manday of family labor (¢)	2,475	241 b/	345 b/	722 c/	260	118	1,143	702	2,025	1,285
Scenario 2a/ Net Return per ha (¢)	37,130	2,890 b/	8,873 b/	9,176 c/	4,427	1,065	19,427	6,315	34,427	11,565
Net Return per manday of family labor (¢)	2,475	53 b/	127 b/	250 c/	260	118	1,143	702	2,025	1,285

a/ See para 2.23 in the text for explanation.
b/ Discounted (at 10%) average annual net return over 2 years.
c/ Discounted (at 10%) average annual net return over 4 years.
d/ At the prevailing producer price of C30,000/m.t. and subsidized inputs. Returns from rehabilitated cocoa are incremental.
e/ If producer prices were to be raised to Q60,000/m.t. and input prices were unchanged.
f/ If producer prices were to be raised to Q90,000/m.t. and input prices were unchanged.

Source: World Bank calculations.

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Yield, Mt/--
Production, 000Mt

Yam

Area, 000 Ha	10	-	2	-	-	-	-
Yield, Mt/Ha	4.5	-	4.5	-	-	-	-
Production, 000Mt	45	-	9	-	-	-	100

C-12 contd

Crop/Item	Ashanti		Brong-Ahafo		Northern		Total Ghana	
	1987	%Reduction in 1987 over 1986	1987	%Reduction in 1987 over 1986	1987	%Reduction in 1987 over 1986	1987	%Reduction in (+) in 1987 over '86
MAIZE								
Area, 000 Ha	70	+7.7	68	-18.1	185	-	544	+0.17
Yield, Mt/Ha	0.9	-30.2	1.2	-18.1	0.69	-	0.83	-21.7
Production, 000mt	63	-23.0	83	-33.1	128	-	452.1	-21.5
RICE								
Area, 000Ha	2.5	-16.7	13	-	40	-	70.9	+1.14
Yield, Mt/Ha	0.64	-20.0	0.76	-	0.95	-	0.88	-0.01
Production, 000mt	1.6	-33.3	10	-	38	-	62.5	-0.4
SORGHUM & MILLET								
Area, 000 Ha	N	N	20	-	433	-	492	-
Yields, Mt/Ha	N	N	0.6	-	0.6	-	0.61	-
Production, 000mt	N	N	12.0	-	263	-	298.4	-
CASSAVA								
Area, 00Ha	70	-	85	-	20	-	409	+5.63
Yield, Mt.Ha	7.5	-6.3	8.5	-	7.0	-	7.15	-3.77
Production 000mt	525	-6.3	722	-	140	-	2924	+1.70
YAM								
Area, 000Ha	16	-20.0	45	-6.25	70	-	178	-0.56
Yield, Mt/Ha	4	-20.0	6.0	-13.3	4.3	-	4.88	-12.14
Production, 000mt	64	-36.0	270	-25.0	300	-	863	-12.65

N : - Negligible

-: Decrease

Source: MOA Statistics

TABLE C-13

Domestic Production Shortfalls Relative to Need: Maize (1987)

Region	Net Domestic Production ('000 Mt)*	Population ('000 Persons)	Per Capita Consump- tion Per Annum (KG)	Human Consump- tion Need	Shortfall (-)/ Surplus (+) Production Compared to Need ('000 Mt)
Western	21.0	1,206	34	41.0	- 20.0
Central	23.1	1,237	46	56.9	- 33.8
Gt. Accra	1.5	1,534	47	72.1	- 70.6
Eastern	56.0	1,814	34	61.7	- 5.7
Volta	23.1	1,297	42	54.5	- 31.4
Ashanti	44.1	2,257	26	58.7	- 14.6
Brong-Ahafo	58.1	1,274	26	33.1	+ 25.0
Northern	68.6	1,256	34	42.7	+ 25.9
Upper East	2.1	833	23	19.2	- 17.1
Upper West	18.9	345	23	8.1	+ 19.8
Total (Ghana)	316.5	13,183	34	448.0	- 131.54

* After allowing for 30 percent for seed, feed and wastage from the gross biological production.

Source: MOA Statistics.

TABLE C-14

Domestic Production Shortfalls Relative to Need: Paddy Rice (1987)

Region	Net Domestic Production ('000 MT)*	Population ('000 Persons)	Per Capita Consump- tion Per Annum (KG)	Human Consump- tion Need	Shortfall (-)/ Surplus (+) Production Compared to Need ('000 MT)
Western	3.2	1,206	10	12.1	- 8.9
Central	1.8	1,237	10	12.4	- 10.6
Gt. Accra	0.1	1,534	12	18.4	- 18.3
Eastern	3.4	1,814	8	14.5	- 11/1
Volta	1.8	1,297	8	10.4	- 8.6
Ashanti	1.3	2,257	8	18.1	- 16.8
Brong-Ahafo	8.0	1,274	5	6.4	+ 1.6
Northern	20.0	1,256	8	10.0	+ 10.0
Upper East	5.6	833	6	5.0	+ 0.6
Upper West	5.0	345	6	2.1	+ 2.9
Total (Ghana)	50.2	13,183	8	109.4	- 59.2

* After allowing for 20 percent for seed, feed and wastage from the gross biological production.

Source: MOA Statistics.

TABLE C-15

Domestic Production Shortfalls Relative to Need: Millet & Sorghum (1987)

Region	Net Domestic Production ('000 MT)*	Population ('000 Persons)	Per Capita Consump- tion Per Annum (KG)	Human Consump- tion Need	Shortfall (-)/ Surplus (+) Production Compared to Need ('000 MT)
Western	8.0	1,206	10	12.1	- 4.1
Central	-	1,237	9	11.1	- 11.1
Gt. Accra	-	1,534	9	13.8	- 13.8
Eastern	-	1,814	9	16.3	- 16.3
Volta	8.5	1,297	10	13.0	- 4.5
Ashanti	-	2,257	9	20.3	- 20.3
Brong-Ahafo	8.4	1,274	10	12.7	- 4.3
Northern	82.6	1,256	45	56.5	+ 26.1
Upper East	59.5	833	47	39.2	+ 20.3
Upper West	42.0	345	47	16.2	+ 25.8
Total (Ghana)	209.0	13,183	16	211.2	- 2.2

* After allowing for 30 percent for seed, feed, industrial use and wastage from the gross biological production.

Source: MCA Statistics.

TABLE C-16

Domestic Production Shortfalls Relative to Need: Cassava (1987)

Region	Net Domestic Production ('000 MT)	Population ('000 Persons)	Per Capita Consump- tion Per Annum (KG)	Human Consump- tion Need	Shortfall (-)/ Surplus (+) Production Compared to Need ('000 MT)
Western	249.9	1,206	167.0	201.9	+ 48.0
Central	263.2	1,237	137.0	169.5	+ 93.7
Gt. Accra	16.2	1,534	137.0	210.1	- 193.3
Eastern	378.0	1,814	167.4	303.6	+ 74.4
Volta	168.0	1,297	167.4	217.1	- 49.1
Ashanti	367.5	2,257	167.4	377.8	- 10.3
Brong-Ahafo	505.4	1,274	167.4	213.2	+ 292.2
Northern	98.0	1,256	121.8	152.9	- 54.9
Upper East	-	833	121.8	101.5	- 101.5
Upper West	-	345	121.8	42.1	- 42.1
Total (Ghana)	2,046.8	13,183	150.9	1,989.7	+ 57.1

* After allowing for 30 percent for seed, feed, and wastage from the gross biological production.

Source: MOA Statistics.

TABLE C-17

Domestic Production Shortfalls Relative to Need: Yam (1987)

Region	Net Domestic Production ('000 MT)	Population ('000 Persons)	Per Capita Consump- tion Per Annim (KG)	Human Consump- tion Need	Shortfall (-)/ Surplus (+) Production Compared to Need ('000 MT)
Western	36.0	1,206	60	72.4	- 36.4
Central	7.2	1,237	55	68.0	- 60.8
Gt. Accra	-	1,534	55	84.4	- 84.4
Eastern	80.0	1,814	70	127.0	- 47.0
Volta	60.0	1,297	55	71.3	- 11.3
Ashanti	51.2	2,257	70	158.0	- 106.8
Brong-Ahafo	216.0	1,274	70	89.2	+ 126.8
Northern	192.0	1,256	70	87.9	+ 104.1
Upper East	-	833	55	45.8	- 45.8
Upper West	48.0	345	55	19.0	+ 29.0
Total (Ghana)	690.48	13,183	62	823.0	- 132.0

* After allowing for 20 percent for seed, feed, and wastage from the gross biological production.

Source: MOA Statistics.

ANNEX D
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ANNEX E

Summary and Time Frame for Macroeconomic, Agricultural
and Structural Adjustment Policies (July 1987 - June 1990)

	Objectives and Targets	Strategies and Measure	Timing of Measure **
1. EXTERNAL SECTOR POLICIES			
a. Exchange and trade system	Pursue a flexible exchange rate policy and further liberalize the exchange and trade system	Ensure smooth functioning of the auction market for foreign exchange	1987, 1988, 1989 and 1990
		Extend access of remaining imports of consumer goods under SIL scheme to auction market in two stages	September 1987 and January 1988
		Reduce further foreign exchange retention privileges	September 1987
		Progressively lift restrictions on payments for services and transfers	1988, 1989 and 1990
		Increase the role of commercial banks and other authorized dealers in the mobilization and sale of foreign exchange arising from non-traditional exports and remittances	January 1988
		Simplify and rationalize the trade tax system	Complete comprehensive review of the tariff system
b. External debt Management	Reduce external debt service burden	Implement necessary tariff reforms	1988, 1989, and 1990
		Waive or reimburse import taxes paid on production for export, improve exporters' access to working capital, and strengthen the Export Promotion Council	1987, 1988, 1989 and 1990
		Strictly limit new external borrowing by the government or with government guarantee in the maturity ranges of 1-5 and 1-12 years	1987, 1988, 1989 and 1990

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Summary and Time Frame for Macroeconomic, Agricultural
and Structural Adjustment Policies (July 1987 - June 1990)

	Objectives and Targets	Strategies and Measure	Timing of Measure **
	Re-establish orderly relations with external creditors	Progressively eliminate all remaining external payments arrears	1987, 1988, 1989 and 1990
2. AGRIC POLICY REFORMS			
a. Cocoa policy	Rationalize producer incentives to ensure production goals	Increase producer price for the 1987/88 crop to cedis 140,000 per ton; and provide a bonus of cedis 10,000 per ton at the end of the crop year	1987/88 crop year
		Establish a compensation account to share the benefits of any unexpected exchange rate depreciation, as well as world price increases, with farmers	September 1987
		Complete study of cocoa incentives, including the tax system	April 1988
		Further raise the producer price to an indicative target of 55 percent of the long-run world price by the 1989/90 crop year	May 1988 and May 1989
		Phase out input subsidies over two years	October 1987 and October 1988
	Confine COCOBOD's operations to those which cannot be carried out more efficiently by other public institutions or the private sector; eliminate activities that do not have a direct bearing on its basic purchasing, marketing and extension functions; thereby reduce COCOBOD's operating costs, net of retrenchment costs, to an indicative target of	Divest 52 plantations and further reduce excess staff	September 1987
		Progressively withdraw from road haulage	1987 and 1988
		Permit private sector to supply inputs and to provide storage	1987, 1988, 1989 and 1990
		Establish joint venture for insecticide formulation plant	1987

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Summary and Time Frame for Macroeconomic, Agricultural
and Structural Adjustment Policies (July 1987 - June 1990)

	Objectives and Targets	Strategies and Measure	Timing of Measure **
	15 percent of the currently projected f.o.b. price in the 1988/89 crop year	Prepare three-year rolling corporate plan for COCOBOD to reflect rationalization measures	July 1987, July 1988 and July 1989
		Conclude performance agreement with government based on first corporate plan	December 1987
b. Other agricultural policies	Reorganize the Ministry of Agriculture and strengthen its policy planning and monitoring capacity	Implement new organizational structure for the Ministry and set up policy coordination committee	December 1987
		Assess training and manpower needs of Ministry	1988
	Strengthen agricultural research and improve link with extension services	Review Agricultural research and develop action program based on results of study	June 1988
		Implement action program	1989 and 1990
	Improve agricultural extension services	Review extension services and develop action program based on results of study	December 1988
		Implement action program	1989 and 1990
	Strengthen Irrigation Development Authority	Twinning arrangement to be set up; and agreement on irrigation policy to be implemented	1988, 1989, and 1990
	Rationalize the budget of the Ministry of Agriculture	Gradually phase out fertilizer subsidy	1987, 1988, 1989 and 1990
		Privatize fertilizer operations	1988, 1989, 1990
		Discontinue mechanization services	1987, 1988, 1989 and 1990
		Implement cost recovery measures for irrigation and veterinary services	1987, 1988, 1989, and 1990

ANNEX E

Summary and Time Frame for Macroeconomic, Agricultural
and Structural Adjustment Policies (July 1987 - June 1990)

	Objectives and Targets	Strategies and Measure	Timing of Measure **
3. FISCAL POLICIES			
a. Revenue	Improve domestic resource mobilization, while promoting incentives for production	Complete reform of personal income tax by further reducing effective tax rates and taxing a wider range of cash allowances	1987 and 1988
		Implement reforms of company income tax and Investment Code	1987 and 1988
		Increase excise duty on main petroleum products, except kerosene	1988, 1989, and 1990
		Initiate indirect tax changes; impose a uniform sales tax on domestic and imported goods (except for a higher rate on luxuries); consolidate the sales tax and certain excise duties; limit exemptions; simplify taxes on beer and cigarettes; increase purchase tax on cars; abolish taxes on SILs; and replace exemptions for customs duty by a standard tax rate on imports	1987 and 1988
		Complete reform of indirect tax system with a view to transforming the sales tax into a major nondistortionary revenue source, limiting the number of excise duties, and ensuring that the import tariff embodies an appropriate pattern of effective protection, along the lines recommended in the IMF technical assistance report of February 1986	1988 and 1989
		Study alternative means of taxing cocoa production, including the replacement of the export tax by an agricultural income tax	1988

ANNEX E

Summary and Time Frame for Macroeconomic, Agricultural
and Structural Adjustment Policies (July 1987 - June 1990)

Objectives and Targets	Strategies and Measure	Timing of Measure **
	Strengthen tax administration through implementation of further reforms regarding taxpayer registration, collection and assessment procedures, staffing and training, and work facilities	
b. Expenditure	Strengthen expenditure control and monitoring	1987, 1988, 1989 and 1990
	Improve planning, monitoring and implementation capacity of the Ministry of Finance and Economic Planning, to provide adequate budget guidance to spending ministries, and to facilitate consultation	
	Expand budgetary coverage to include capital expenditure financed through external project aid	1988
	Implement other major reforms to budgetary and expenditure control systems recommended in the IMF technical assistance report of November 1986	1987, 1988, and 1989
	Improve provisions for government services by correcting the imbalance between wages and salaries and other recurrent expenditures	1987, 1988, 1989 and 1990
	Revise annually a three-year macroeconomic framework for public expenditure	
	Limit total civil service wages and salaries to 5-6 percent of GDP	1987, 1988, 1989 and 1990

ANNEX E

Summary and Time Frame for Macroeconomic, Agricultural
and Structural Adjustment Policies (July 1987 - June 1990)

Objectives and Targets	Strategies and Measure	Timing of Measure **
Raise government capital expenditures (including projects financed by external aid) from 6 percent of GDP in 1986 to about 8 percent of GDP in 1988; and improve average rate of return on public sector investment	Fully implement public investment program for 1986-88	1987 and 1988
	Update and extend public investment program to cover period 1988-90	December 1987
	Apply appropriate criteria for project selection and protect budgetary funding of key projects	1987, 1988, 1989, and 1990
4. STATE ENTERPRISE REFORM		
Rationalize the state enterprise sector through mergers, divestitures, and liquidations	Continue to apply the moratorium on the creation of new state enterprise except under agreed conditions	1987, 1988, 1989, and 1990
	Identify 30 state enterprises for sale, liquidation, or conversion to joint ventures	1987
	Offer 5 of the above enterprises for sale and initiate liquidation proceedings for another 5	December 1987
	Establish and carry out action plans for the remaining 20 enterprises	1988 and 1989
Eliminate arrears and restore financial discipline	Identify arrears and cross-debts for 14 major state enterprises and prepare plan for settlement	October 1987
	Clear arrears of above enterprises	1988 and 1989
	Identify arrears and cross-debts for other selected enterprises	December 1987

ANNEX E
Summary and Time Frame for Macroeconomic, Agricultural
and Structural Adjustment Policies (July 1987 - June 1990)

Objectives and Targets	Strategies and Measure	Timing of Measures
	Prepare draft performance agreements for 4 of the 14 major state enterprises.	December 1987.
	Conclude performance agreement with COCOBOD.	December 1987.
Improve management of state enterprises and rehabilitate selected enterprises.	Continue to apply hiring freeze.	1987, 1988, 1989, and 1990.
	Identify excess staff in major state enterprises (including COCOBOD), and take steps to effect aggregate staff reduction of 5 percent per annum.	1987 and 1988.
	Estimate cost of redundancies and develop financing plan.	September 1987.
5. MONETARY POLICY AND FINANCIAL SECTOR REFORMS	Mobilize financial savings and enhance financial deepening.	
	Liberalize interest rates by freeing most deposit rates and abolishing maximum lending rates.	September 1987.
	Develop an active money market through the establishment of a discount house.	November 1987.
	Introduce an auction market for Treasury bills.	October 1987.

ANNEX E
**Summary and Time Frame for Macroeconomic, Agricultural
 and Structural Adjustment Policies (July 1987 - June 1990)**

Objectives and Targets	Strategies and Measure	Timing of Measures
Improve the financial position of the banking system.	Complete financial and management audits of the Ghana Commercial Bank, the Social Security Bank, and Barclays Bank.	December 1987.
	Strengthen bank supervision.	1987, 1988, 1989, and 1990.
	Restructure the capital of the Ghana Commercial Bank and the Social Security Bank.	1988 and 1989.
Substantially reduce the banking system's net claims on the Government to ensure and adequate flow of resources to the private sector within the constraints set by the balance of payments and inflation targets.	Generate a significant overall government budgetary surplus and mobilize adequate nonbank resources.	1987, 1988, 1989 and 1990.
Effectively control credit and monetary expansion without discouraging the mobilization of resources by banks.	Apply active money base management through reserve ratios and discount window.	1988, 1989, and 1990.
6. PUBLIC SECTOR MANAGEMENT REFORMS	Improve economic policy coordination.	Establish economic liaison unit for the secretariats of the PNDC and the Committee of Secretaries to expedite economic policy decisions.
		Establish economic policy unit in the Ministry of Finance and Economic Planning; and clarify organizational and reporting arrangements and appoint key staff.

ANNEX E
 Summary and Time Frame for Macroeconomic, Agricultural
 and Structural Adjustment Policies (July 1987 - June 1990)

Objectives and Targets	Strategies and Measure	Timing of Measures
Strengthen key economic management functions, particularly policy analysis and planning budgetary control, and coordination, and external debt management.	Prepare appropriate organization and staffing plan for the Ministry of Finance and Economic Planning.	December 1987.
Rationalize civil service salaries.	Complete assessment of civil service salary policy.	November 1987.
	Revise salaries in 1988 budget and in subsequent budgets on the basis of study of civil service salaries.	1988, 1989, and 1990.
Redeploy surplus personnel.	Remove about 15,000 staff from payroll in 1987 in two stages.	October 1987.
	Carry out staffing and functional review of the civil service.	December 1987.
	Subject to the above review, remove an additional 15,000 staff from payroll in 1988.	October 1988.
	Establish a fiscally sound compensation scheme for retrenched workers.	September 1987.
	Initiate skills mobilization schedule, including supplementary remuneration of key personnel.	5 July 1987
Improve management of external financial resources.	Establish a debt-management and information system.	September 1987.
Improve management of public sector reform program.	Strengthen office of the Head of the Civil Service.	1987 and 1988.

**Where a single date is indicated, it means that the measure(s) will be implemented no later than that date; where one year or several years are specified, it means that actions will be taken each year.