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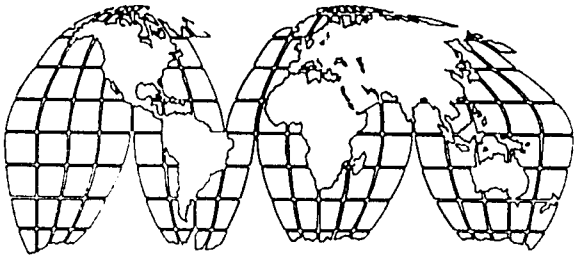

Assessment of USAID's Agribusiness Program:

Cameroon Case Study

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

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by

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and

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Center for Development Information and Evaluation

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PREFACE

This evaluation of Cameroon's Fertilizer Sub-Sector Reform Program (FSSRP) is one of seven case studies that have been or will be carried out as part of a worldwide assessment of the impact of agribusiness programs financed by the U.S. Agency for International Development (USAID). The assessment is being conducted by the Center for Development Information and Evaluation (CDIE) in USAID. The other evaluations have been or will be conducted in Guatemala, Ecuador, Sri Lanka, Thailand, Bangladesh, and Uganda. The findings and conclusions of the seven case studies will be used to prepare a synthesis report on generalizable conclusions and lessons learned that can be applied to the design and implementation of future agribusiness programs.

The overall manager of the agribusiness assessment is Krishna Kumar of CDIE. Dr. Kumar prepared the concept paper and the overall design for the assessment, was the team leader for the Sri Lanka case study, and will be the principal author of the synthesis report.

The Cameroon case study began with the preparation of a background study by Richard Abbot. Mr. Abbot is an agribusiness specialist who had previously prepared five annual assessments of FSSRP. The field work for the case study was carried out by a two-person team. Roger Poulin was the economist and team leader. Craig Olson served as the social scientist. Mr. Abbot, Mr. Poulin, and Dr. Olson were employed through a USAID contract called Evaluation Technical Services (ETS) held by Development Alternatives, Inc. (DAI). Dr. Olson is also the director of the ETS contract, which provides technical assistance to all the program evaluations conducted by CDIE.

Data collection in Cameroon took place between November 13 and December 4, 1993. For most of the interviews, the DAI team was accompanied by Daniel Moore, the FSSRP project officer in USAID/Cameroon, and by Richard Molu, the technical coordinator of FSSRP in the Cameroonian Ministry of Agriculture.

We would like to take this opportunity to acknowledge with gratitude the generous technical and logistical support provided to the team by Mr. Moore, Mr. Molu, and numerous other individuals in the Cameroon Government and USAID/Cameroon.

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ACRONYMS

AEPRP	African Economic Policy Reform Program
CAPLAME	UCCAO member-cooperative
CAPLAMI	UCCAO member-cooperative
CDIE	Center for Development Information and Evaluation
CIF	Cost, insurance and freight
EAPRI	Economic Analysis and Policy Reform Implementation Unit
EC	European Community
ETS	Evaluation Technical Services
FCFA	Franc Communauté Financière Africaine (currency used in Cameroon)
FOB	Free on board
FONADER	Fond National pour le Développement Rurale
FSSRP	Fertilizer Sub-Sector Reform Program
GDP	Gross Domestic Product
GRC	Government of the Republic of Cameroon
IFDC	International Fertilizer Development Center
IMF	International Monetary Fund
L/C	Letter of Credit
NPA	Nonproject Assistance
NPK	Nitrogen-Phosphorous-Potassium (symbol representing compound fertilizers)
NWCA	North West Cooperative Association
ONCPB	Office Nationale de Commercialisation des Produits Bruts
ONCC	Office Nationale de Café et de Cacao
PRAMS	Program of Reform in the Agriculture Marketing Sector

PSIE	Programme Spécial d'Importation d'Engrais (EC-supported fertilizer importation program for the three northern provinces)
RCF	Revolving credit fund
SODECOTON	Société pour le Développement du Coton
TSC	Technical Supervisory Committee
TSU	Technical Support Unit
UCCAO	Union Centrale des Coopératives Agricole de l'Ouest
USAID	U.S. Agency for International Development

CHAPTER ONE

INTRODUCTION

BACKGROUND OF STUDY

The purpose of this study is to evaluate the impact of the Fertilizer Sub-sector Reform Program (FSSRP) in Cameroon in the context of the objectives of the worldwide agribusiness program of the U.S. Agency for International Development (USAID). This presents difficulties, however, because FSSRP is not a typical USAID agribusiness program in either its objectives or its strategies. To understand why this is so, a brief history of USAID agricultural programs and of the USAID/Cameroon agricultural program is in order.

Historical Context

In USAID's early days, most agricultural projects dealt with agricultural production. Many, if not most, projects concentrated on the development and dissemination of production technologies. Some projects in USAID's agricultural portfolio had such nonproduction objectives or components as agricultural education, input distribution, and credit. But, strategically, these activities were seen as components that contributed to the central objective, which was to increase the effectiveness and efficiency of agricultural technologies.

Although many USAID projects were successful in transferring improved technologies to farmers, improved technologies did not always lead to increased farmer income or to other measures of value added. Productivity gains were dissipated for lack of storage and processing facilities, because of inefficient marketing, or because of adverse economic policies. Thus, in the 1980s, USAID missions turned their attention increasingly to the off-farm components of the agriculture sector.

It was in this context that FSSRP was conceived in the mid-1980s. USAID/Cameroon already had under way a number of projects aimed at developing improved agricultural technologies and increasing production. These included projects aimed at increasing seed multiplication and distribution, at improving agricultural education, and at strengthening agricultural research. In reviewing the results of these projects, the Mission determined that, despite some successes, results were frequently suboptimal and that the main reason for this was inappropriate Cameroonian government policies. In particular, the problem was diagnosed as excessive government control over prices and over input distribution and marketing.

Thus, to complement its existing projects, the Mission decided that a new generation of programs would concentrate on removing these policy barriers. Three programs were envisaged. One would concentrate on privatizing agricultural marketing, and another on the establishment of export zones. The third, which was actually the first in line, was FSSRP, which aimed at the liberalization and privatization of fertilizer distribution.

Agribusiness and FSSRP

Because of its concentration on policy reform, FSSRP, which was begun in 1987 and ended in 1993, was not a typical USAID agribusiness program. It did not work directly with businesses involved in the storage, processing, transportation, or marketing of agricultural products. It had no targets for increased agricultural value added. It contained no activities dealing with postharvest activities. It did deal with the distribution of an agricultural commodity, fertilizer, but had no technical assistance component aimed at working directly with fertilizer distributors. The program was not even designed or implemented by the agriculture office of USAID/Cameroon. It drew on budget allocations from USAID's African Economic Policy Reform Program (AEPRP) and was designed and implemented by a new office established in USAID/Cameroon called the Economic Analysis and Policy Reform Implementation Unit (EAPRI).

Thus, FSSRP is perhaps better seen as a policy reform program that happened to be aimed at an economic activity in the agriculture sector. The program's policy objective was to bring about the liberalization and privatization of fertilizer distribution. This was seen by the Mission as a first step leading to the liberalization of more important economic sectors.

Objectives of the Evaluation

Given that FSSRP's objectives were relatively modest and were not typical of traditional USAID agribusiness programs, how, then, can we evaluate the program within the context of the overall objectives of USAID agribusiness programs? We will try to do this by going beyond an evaluation of the specific objectives of the program to ask questions about the program's relevance and impact in the wider context of USAID's agribusiness program. Specifically, this evaluation will assess FSSRP's impact on agribusiness development and agribusiness growth by addressing the following questions:

- Did the program succeed in its immediate objective, which was the liberalization and privatization of fertilizer distribution in Cameroon?
- If so, what factors contributed to this success?
- Did the achievement of the immediate objective contribute to accomplishment of the intermediate objective, which was making fertilizer available to farmers on a more timely basis and at lower cost?
- If so, what factors contributed to the achievement of this objective?
- To what extent were the program's objectives relevant to the overall objective of USAID's agribusiness program, which is to add economic value, and to what extent did the program succeed in accomplishing this objective?
- What factors contributed to the success or failure of the program in terms of its impact on the agriculture sector in Camercon?
- What was the impact of the program on the distribution of benefits, including its impact on women?
- What is the likelihood that whatever successes the program attained will be sustained?

COUNTRY SETTING

Macroeconomic Situation

Until 1985, Cameroon was considered one of Africa's economic success stories. Between 1970 and 1980, gross domestic product (GDP) growth averaged 5 percent per year based mainly on coffee and cocoa exports, which in 1977 accounted for 60 percent of total export earnings. During this period, the government's economic policies were aimed at promoting exports and encouraging foreign private investment. The country's currency, the Central African franc (FCFA) was fully convertible and there were no restrictions on foreign investments or on the repatriation of earnings.

Economic performance was given an additional boost in the late 1970s when petroleum became the country's major export. Between 1981 and 1986, annual GDP growth averaged 9 percent, with per capita GDP peaking in 1985 at about $1,000. By 1984, petroleum accounted for 64 percent of export earnings and the share of coffee and cocoa had dropped to 17 percent. The government was widely commended for pursuing a policy of export diversification, mainly by investing in the agricultural export sector, and for controlling inflation by investing a large portion of its rapidly growing export earnings abroad. The main policy concern at this time was what appeared to be excessive government involvement in and control of economic activity.

The situation began to deteriorate in 1986 with the drop in world petroleum prices. Export earnings declined by 33 percent in 1986, and the government's budget deficit in 1986-1987 totalled $1.5 billion, 13 percent of GDP. This was followed by a long-term decline in coffee and cocoa prices beginning in 1987. World prices for cocoa, robusta coffee, and arabica coffee in 1992 were 25 percent, 15 percent, and 17 percent of 1980 prices, respectively. As a result of these dramatic declines in Cameroon's commodity prices, GDP has declined every year since 1986.

The performance of Cameroon's economy has had an adverse effect on both urban and rural incomes. In urban areas, the government had to cut government salaries and eliminate all subsidies for import substitution and export industries. Unemployment increased steadily and household incomes declined. The same occurred in rural areas. Producer prices for cocoa and coffee dropped from 435 FCFA and 470 FCFA per kilo in 1988 to 220 FCFA and 155 FCFA in 1993.

There is little prospect that the Cameroonian economy will benefit in the near term from dramatic surges in world commodity prices. Petroleum prices are expected to remain at current levels; Cameroon's petroleum production, moreover, has started to decline because of depleting reserves. World prices for coffee and cocoa may increase to some extent, but will probably not attain their early 1980s levels again in the foreseeable future.

To cope with its economic misfortunes, the government has, since 1990, been implementing an economic stabilization and liberalization program with support from the International Monetary Fund (IMF), the World Bank, and several major bilateral donors, including France and the European Community. The program consists of:

- Reducing government expenditures, mainly by cutting civil service salaries and freezing new hiring;
- Restructuring and privatizing public enterprises;
- Reforming trade policy, especially reducing tariff and nontariff barriers; and

- Liberalizing agricultural export marketing systems.

The government has made considerable, but far from adequate, progress in all these areas. In 1993, both the IMF and the World Bank suspended their nonproject assistance because key policy reform targets had not been met.

One recent change in macroeconomic policy, however, will have a positive effect at least in the short term on the Cameroonian economy and especially on Cameroonian exports. In January 1994, the country's currency, the FCFA, was devalued by 100 percent, from a fixed parity of 50 FCFA to 1 French franc (FF) to a new fixed parity of 100 FCFA to 1 FF. Although this devaluation will increase the cost of imports, including fertilizer, it will make all Cameroonian exports, including petroleum, coffee, and cocoa, much more competitive internationally, thus creating incentives for increased production. (The specific effect of the devaluation on the outcomes of FSSRP will be analyzed in a subsequent section of this evaluation.)

In the long run, however, even the devaluation will not be enough to bring about sustained economic recovery. The underlying causes of the country's lack of international competitiveness cannot be cured by a currency devaluation. Cameroon will become internationally competitive only if it reduces domestic costs of production, which means reducing real incomes and standards of living. This has been occurring to some extent but at too slow a pace and in a macroeconomic policy context that has not yet been sufficiently liberalized. The system of government controls that has prevented the economy from adjusting to changing world markets has not yet been dismantled. Until the domestic costs of production drop sufficiently and the economy is liberalized so that it can respond to market forces, donor and government efforts to increase exports will not, in the long run, be successful.

It is in this context of serious macroeconomic distortions that USAID/Cameroon's FSSRP has to be assessed.

Program Rationale

USAID/Cameroon did not have an agribusiness strategy at the time that FSSRP was being designed, but the Mission had identified the pervasive system of government controls as a major constraint to private sector-led growth. Parastatals dominated the formal private sector; in addition, government agencies controlled the prices and marketing margins of a number of commodities.

One part of the government-controlled agricultural marketing system centered on coffee and cocoa. Producer prices were fixed by the price stabilization authority (Office Nationale de Commercialisation des Produits Bruts or ONCPB), partly as a way to protect producers from fluctuating world prices and partly to generate government surpluses to finance development projects. One use of these surpluses was to subsidize fertilizers to encourage their use by coffee farmers. As long as the price stabilization program was generating surpluses, the government had an outside source of funds for the subsidies. However, once the program started experiencing deficits, the government was forced to rely on general tax revenues, which were already inadequate to fund the government recurrent budget.

In the meantime, USAID/Cameroon along with other donors had been pressuring the government to scale back its system of economic controls. The government's inability to fund its fertilizer subsidy program, combined with USAID/Cameroon's priority interest in economic liberalization, resulted in FSSRP.

CHAPTER TWO

FERTILIZER SUB-SECTOR POLICY REFORM PROGRAM

SITUATION PRIOR TO FSSRP

In the mid-1980s Cameroon was importing some 105,000 tons of fertilizer annually, of which 65,000 tons were subsidized. About 90 percent of the subsidized fertilizer was intended for use on coffee, although a large portion of the fertilizer was diverted to other crops. Of the 40,000 tons of unsubsidized fertilizer, about half was supplied to cotton farmers by SODECOTON, and most of the remainder was purchased by parastatals producing bananas, oil palm, pineapples, and other agricultural crops. The original purpose of the subsidy was to promote the use of fertilizer on coffee. By the mid-1980s, fertilizer use had become widely accepted by coffee farmers and was profitable even without the subsidy.

The importation and distribution of fertilizer was controlled by the government. Estimates of fertilizer requirements for the agricultural season starting in July were made the previous November. The first estimates were made at the provincial level by coffee cooperatives and the Ministry of Agriculture provincial representatives. These estimates were then aggregated at the national level by FONADER (Fond National pour le Développement Rurale), the government parastatal responsible for administering the subsidized fertilizer program. An interministerial body would then determine the subsidy rate and the level of funding to be made available for that year. The subsidy, which was always less than that needed to cover the estimated requirements, was then allocated at the provincial level among the various organizations distributing fertilizer to farmers. This subsidy funding and allocation process was usually completed by August, at which time the Ministry of Public Contracts would request tenders from private importers for fertilizers intended to arrive in Cameroon the following February and March, in time for the first application on coffee.

The supply system was cumbersome and time-consuming. It took well over one year from the initial estimate of requirements to the arrival of fertilizer at the farm level. Once the procurement contracts were let, the receipt and forwarding of the fertilizer became FONADER's responsibility. Final distribution to the farmers was made mainly through cooperatives, but also through development projects and the provincial agricultural extension services. From beginning to end, the process involved at least nine government ministries or agencies, virtually assuring high costs, long delays, and numerous opportunities for corruption. At best, the process required 15 months; at worst, two years.

A key aspect of the supply system was the financing. FONADER paid importers a 30 percent down payment when they signed a contract with a supplier and another 40 percent when the fertilizer arrived in Douala. The importers received the remaining 30 percent 45 days after delivery, which, in theory, provided FONADER enough time to receive payment from the distributors in the provinces. However, because most of the distributors provided fertilizer to farmers on credit, they did not pay FONADER until the crops were harvested. In addition, because the sale price to farmers did not include the full cost of inland distribution, FONADER ended up absorbing these costs. This system managed to deliver fertilizer at a low price to the farmer, but at a very high cost to the government.

PROGRAM DESCRIPTION

FSSRP's stated objective was to "ensure timely availability of fertilizers for export and food crops at the lowest possible cost to farmers and government." This objective was to have been achieved by replacing the subsidized fertilizer distribution system administered by FONADER with a fully privatized unsubsidized system. The program called for FONADER to be dissolved in the first year and for the subsidies to be phased out over a five-year period. USAID/Cameroon's contribution was to provide financial and technical support during the transition period when the subsidies were being phased out and the private sector was adjusting to a fertilizer market free of government controls.

USAID/Cameroon envisaged four major benefits to be obtained from removing the subsidies and privatizing the supply system:

- Savings to the government;
- Reduced marketing costs;
- More timely and flexible deliveries to farmers; and
- More optimal fertilizer use decisions by farmers who would be paying the full delivered cost.

New System During the Transition Period

The main elements of the new system during the transition period were:

- An interministerial body called the Technical Supervisory Committee (TSC) would set the subsidy level each year, oversee the subsidy phase-out, and assess progress toward privatization.
- A commercial bank was selected as a fiduciary bank to manage the fertilizer subsidy fund financed by the government and a revolving credit fund (RCF) financed by USAID/Cameroon. The purpose of the RCF was to provide low-interest financing for fertilizer imports and distribution.
- Each year, once the subsidy level was known, the province-level distributors would estimate their break-even prices and the amounts they could sell to farmers at those prices, request tenders from private importers, then place an order with the importers of their choice. The subsidy fund was earmarked on a first-come-first-served basis.
- As soon as importers were able to estimate what they wanted to import, they were required to apply for a loan from a commercial bank for up to 50 percent of the delivered cost of the fertilizer. Once the commercial bank approved the loan it would request that the fiduciary bank earmark the necessary subsidy funds. The approved loan was made a precondition for receiving the subsidy. The funds for the commercial bank's loan to the importer would be borrowed by the bank from the RCF, with the commercial bank assuming all of the risk for repaying the RCF. The RCF was created to provide low-cost financing as an incentive for importers to enter the fertilizer market. The reason for making the loan a precondition for

receiving the subsidy was to use commercial banks to screen importers. Requiring the importer to borrow from a commercial bank with the bank assuming all of the risks was one way of assuring that only financially sound businesses would be participating in the fertilizer program.

- When the fertilizer arrived and cleared customs at Douala, the distributors who had placed the orders would take delivery and pay the importers. The RCF was available to these distributors, through commercial banks, for financing their working capital requirements for up to 50 percent of the delivered value of the fertilizer. As with the import loans, the commercial banks making the loans were fully responsible for repaying the RCF. The distributors would repay the loan when the fertilizer had been delivered to the farmers. The farmers either paid on delivery or were provided credit by the distributor. The RCF was not available to finance farmer fertilizer purchases.

At the end of the subsidy phase-out period, the system was to become fully privatized. The only remaining government involvement would be if the government-owned RCF were to be continued. In this case, it was expected that the government would continue to use a fiduciary bank, and the funds would continue to be lent at a subsidized rate to commercial banks for on-lending to importers and distributors with the commercial bank fully responsible for repaying the loans.

FSSRP Inputs

FSSRP had two components, $13.5 million of nonproject assistance and $1.5 million of technical assistance. The purpose of the nonproject assistance was to create the RCF. Low-cost financing of fertilizer imports and distribution was seen as an essential precondition for the private sector's entering the fertilizer market. Disbursements of nonproject assistance were conditioned on the government dissolving FONADER, phasing out fertilizer subsidies, and removing all fertilizer price and marketing controls. The technical assistance — one long-term advisor and periodic short-term consultants — was mainly responsible for overseeing and providing technical support for the transition process.

The Cameroonian government financed the subsidy fund, and created the policy-level TSC supported by a secretariat.

FSSRP Implementation

FSSRP implementation can be divided into three phases.

Phase One

Implementation of the FSSRP began with the design. Initial discussions in 1986 between USAID/Cameroon and the government led to a study of the fertilizer market by the International Fertilizer Development Center (IFDC). On the basis of this study and other data, USAID/Cameroon undertook in-depth discussions with key government ministries, cooperatives and other fertilizer distributors, importers, and banks to develop a common understanding of the fertilizer marketing system and to reach agreement on desirable reforms. As a result, key policy-level government officials understood and supported the FSSRP prior to the signing of the program agreement.

Phase Two

The design phase was followed by the learning phase, which covered the first two years after signing the program agreement. During the subsidy phase-out period, a basic requirement was for timely decisions on the size and availability of the subsidy. The government decided on the subsidy amount in September, and the fertilizer reached the farmers the following March and April for application on coffee. During the first year, numerous and persistent interventions by USAID/Cameroon and the TSC were required to change time-consuming procedures that government ministries and agencies were insisting on carrying over from the old system.

By the end of year two, the procedures for the transition period had become well established, and it became clear how the privatized supply system would work after the transition period ended.

- First, the supply system became much more efficient so that the increase in the delivered price of fertilizer was much less than the reduction in the subsidy.

- Second, a sharp drop in world prices for coffee caused a drop in fertilizer demand that was not made up by the increased use of fertilizer on other crops. Total fertilizer imports would be substantially lower than they had been under the old system, but this was caused more by changing markets than by the removal of the subsidy.

- Third, it became clear that, although there was a severe lack of liquidity in the coffee sector because of the declining coffee prices and large ONCPB payment arrears, the private sector supply system would have to be self-financing. Even with low-cost access to the RCF, commercial banks were unwilling to provide credit for the importation and distribution of fertilizer. Banks required that letters of credit be fully secured with assets other than the fertilizer being imported. The RCF was only used to finance the commercial bank loans made to, but not used by, the importers as a precondition for receiving the fertilizer subsidy. By the end of year two, it was clear that the RCF would not contribute significantly to the financing of the private sector fertilizer supply system. Banks and importers were in agreement that the fund would be more useful as a guarantee facility that could be used by commercial banks to reduce their risks when making fertilizer loans, but USAID/Cameroon felt that making the new system dependent on a guarantee fund would endanger its long-term sustainability.

- Fourth, the subsidy was a major incentive for importers to enter the fertilizer market. It lowered the price at which importers could sell to distributors. The subsidy could also be used as part of the security for the letter of credit, thus reducing the importer's working capital requirements. The attractiveness of the subsidy caused a problem when importers recognized that they could obtain a competitive advantage by earmarking all of the subsidy funds early, even if they did not have firm orders from distributors. These importers would then wait to cancel the earmarking only when it was too late for other importers to apply. The problem was resolved by making minor changes in the procedures for earmarking the subsidies.

Phase Three

The final phase was the last four years of the program. Only two significant, nonroutine actions occurred during this period. First, the TSC removed the requirement that importers take out a commercial bank loan before receiving the subsidy. Importers were able to demonstrate that the ability to obtain a letter of credit or a supplier credit was in itself sufficient evidence of creditworthiness. Second, use of the RCF was expanded to include medium-term loans for investments in the fertilizer sector, such as a mixing and bagging plant or fertilizer storage facilities. These investments would further reduce the cost of fertilizer and also help make more types of fertilizer available to farmers.

CHAPTER THREE

PROGRAM PERFORMANCE AND OUTCOMES

FSSRP had three short-term objectives that were linked in a cause and effect relationship. The first was to induce the Government of Cameroon to enact policy reforms that would result in the liberalization and privatization of the fertilizer distribution system affecting the country's coffee growing areas. The second was to stimulate private sector operators to take advantage of these policy reforms by actively engaging in fertilizer importation and distribution. The third was to increase the efficiency and effectiveness of the distribution system itself.

FSSRP was successful in achieving all these objectives. This section will present first the program performance results of FSSRP and will then analyze the factors that contributed to the success of the program. A subsequent section will analyze the impact of the program on farmers.

MEASURES OF PROGRAM SUCCESS

Policy Outcomes

FSSRP was instrumental in achieving three policy reforms that were required for the liberalization and privatization of fertilizer distribution in Cameroon. First, FONADER, which was the key government agency that controlled the fertilizer distribution system, was dissolved. This left the entire marketing process to the private and cooperative sectors. Second, fertilizer prices were decontrolled. In the first year of the program the government insisted on target ceiling prices as long as subsidies were in effect, but by the end of the second year, when the delivered price to farmers had been consistently far below the target price, it became clear that the fertilizer price ceilings were not needed, and they were officially terminated.

Third, the subsidy was gradually removed. The original plan called for all subsidies to be removed by 1992, but, because of the sharp fall in coffee prices and the hardship that this placed on farmers, the deadline was extended by one year. The subsidy program was officially terminated in 1993. By terminating the subsidies and dissolving FONADER the government saved about $20 million per year.

Engagement of the Private Sector

One measure of the success of privatization is the entry of private sector firms into a newly privatized sector. With respect to the Cameroonian fertilize market, the trends over the life of FSSRP are shown in Table 1. At the importer level, there were never more than three firms importing in any given year, although every year between 10 and 14 firms responded to requests for tenders from distributors.

Somewhat surprisingly, the major importers under FSSRP were all majority foreign-owned. These firms have little more than an office in Cameroon. They import fertilizer already bagged, and rent warehouse space and transport services as needed. The established firms, which had imported fertilizer

under the FONADER system, submitted bids in the early years but were not competitive, mainly because of their high overhead costs.

The strongest effect of privatization has been at the distributor level. In the first year there were only four distributors, all cooperatives that had been active under the FONADER system. The following year, four private distributors entered the market. By 1992 the number of private distributors had increased to eleven, accounting for about 50 percent of all the fertilizer distributed. Within the cooperative system, most distribution shifted from apex cooperatives to individual cooperatives. In West Province, the Union Centrale des Coopératives Agricoles de l'Ouest (UCCAO) is no longer importing fertilizer after having purchased 30,000 tons in 1988/89. In 1993, CAPLAMI and CAPLAME, both members of UCCAO, purchased 7,400 tons. The apex cooperatives in the Littoral and Central Provinces stopped purchasing fertilizer after the first year, due entirely to the drop in robusta coffee prices.

TABLE 1

PRIVATE SECTOR PARTICIPATION IN FSSRP

Economic Operator	1988/89	1989/90	1990/91	1991/92	1992/93
Commercial Banks	4	4	4	5	3
of which participated	2	4	1	4	3
Suppliers	3	3	3	4	4
Active Importers	14	10	10	13	12
of which imported	3	2	1	3	3
Active Distributors	6	16	18	22	many
of which distributed	4	10	17	20	"
of which cooperatives	4	10	17	20	"
of which "for profit"	0	4	11	11	"
Provinces Covered	3	5	5	6	7

Another measure of privatization is the involvement of financial institutions in the sector. As a result of FSSRP, commercial banks began for the first time providing banking services to fertilizer importers, mainly the issuing of letters of credit (L/Cs). No fertilizer distributors, however, received bank financing.

Commercial banks began with the idea the fertilizer sector was too risky. Banks were simply unwilling to lend money to fertilizer importers or distributors even when fertilizer was offered as collateral. Over the life of the project, however, the banks gradually became more knowledgeable about the fertilizer market and are now more confident, although no less stringent, in their dealings with importers and distributors. Despite the availability of the RCF, all import financing still occurs through L/Cs that are fully secured by cash or other liquid assets or, more recently, through supplier credits. Now, however, when banks turn down requests for loans, they at least give reasons that are well founded and that importers and distributors can understand. One result is that banks, importers and distributors

are now all agreed that, from the banks' standpoint, the risks of financing fertilizer imports and distribution are excessive and the RCF should be used to reduce those risks.

The banking sector also played an important fiduciary role in FSSRP. By managing the subsidy and revolving credit funds under fully transparent and commercially based criteria, the fiduciary bank played a critical role in increasing private sector confidence in the new system.

Increased Market Efficiency

The FSSRP's impact on the degree of competition and market efficiency has exceeded all expectations. Table 2 shows the trends in CIF fertilizer prices and distribution costs since the start of the program. In 1987, the average CIF price for subsidized fertilizer was 97,600 FCFA per ton, and distribution costs totalled 36,000 FCFA per ton. In the first year of the program the CIF price and the distribution costs dropped by 58 percent and 18 percent respectively. These costs kept declining so that, by 1992, the full delivered cost to the farmers had dropped by 43 percent. Even though only two or three firms imported fertilizer under the FSSRP in any given year, many others bid on the tenders, making the process highly competitive. Similarly, the decontrol of fertilizer prices provided distributors with an incentive to minimize distribution costs. Under the new system, any cost savings can result in increased profit margins or increased market share. Without the drop in CIF prices and distribution costs, the removal of the fertilizer subsidy would have increased the average retail price by 300 percent. With the cost reductions, the increase was only 42 percent.

TABLE 2

COMPARISON OF MARKETING COSTS, 1987/1988-1992/1993

	Public Monopoly	Fertilizer Sub-Sector Reform Program					
	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	Total Change (%)
1. Subsidy Disbursed (FCFA billion)	6.0	2.0	1.5	0.5	0.6	0.4	
2. Average Unit Subsidy (FCFA/T)	88,600	31,638	25,030	21,034	15,884	12,669	-85.7%
3. Subsidy Rate (row 2/row 4)	66.3%	36.7%	30.2%	26.3%	20.3%	16.5%	-75.1%
4. Delivered Cost ,FCFA/T)	133,600	86,235	82,858	79,960	78,111	76,570	-42.7%
4a. CIF Cost	97,600	56,512	58,031	55,133	54,463	50,064	-48.7%
4b. Distribution Cost	36,000	29,723	24,827	24,827	23,648	26,506	-26.4%
5. Retail Price (FCFA/T)	45,000	54,597	57,828	58,926	62,227	63,901	42.0%

In addition, fertilizer is now widely available throughout the year. Private distributors purchase fertilizer from importers in Douala at different times of the year in line with market demand. A steadily increasing proportion of these fertilizers are sold to farmers though hundreds of small retailers located in local markets. Although the program has been importing the same five fertilizers that had originally been subsidized, the mix between these fertilizers has shifted in response to market demand. This is in striking contrast to the FONADER system under which the government determined which fertilizers would be imported and then distributed all of the fertilizers at one time, presumably timed to meet the needs of coffee farmers but, in practice, almost always arriving too late.

It should also be noted that, just as fertilizer is now more available in areas where there is effective demand, it is no longer being sold in other areas. In 1985, subsidized fertilizer was distributed in seven provinces, of which the Littoral Province (a robusta coffee growing area) accounted for 42 percent. In 1993, virtually all fertilizer was sold in two provinces, the West and Northwest Provinces. Fertilizer consumption in the Littoral Province dropped from 27,000 tons in 1985 to almost nothing in 1992. The subsidy reduction combined with the drop in world prices quickly made fertilizer use uneconomic on robusta coffee, and there were no other crops in the robusta coffee growing areas for which fertilizer use was profitable.

FACTORS EXPLAINING PROGRAM PERFORMANCE

Four factors contributed to the successful privatization of Cameroon's fertilizer supply system.

1. *The Cameroonian government could no longer afford the high cost of the fertilizer subsidies, but wanted to minimize the adverse effects of their removal on fertilizer use and agricultural production.*

By 1986, when FSSRP was being designed, the government was facing severe financial constraints as a result of declining petroleum revenues. This trend was aggravated in 1987 by declining world prices for coffee and cocoa. The government was facing mounting budget deficits with no prospects for significant improvements in the foreseeable future. The IMF and World Bank were putting strong pressure on the government to reduce its expenditures, balance its budget, and liberalize the economy.

A specific area of concern was the agricultural export sector. With declining world prices for coffee and cocoa, ONCPB was no longer generating surpluses, which meant that the government had lost its main source of funding for fertilizer subsidies. Even without FSSRP, the government would have had to discontinue the fertilizer subsidy program and would very likely have had to downsize if not completely dissolve FONADER. Therefore, when USAID/Cameroon initiated discussions on how to privatize fertilizer distribution in ways that would minimize the adverse effects on farmers and on agricultural production, the government expressed a strong interest.

2. *USAID, for its part, chose to concentrate on a limited policy objective where it could make a difference — reform of the fertilizer subsector — rather than on broader and more complex issues related to government deficit reduction and economic liberalization, where it could have little or no impact.*

The Cameroonian government and donors were facing two sets of related problems when FSSRP was being designed: (1) the government's growing deficits, and (2) the complex web of government controls that were preventing the economy from adjusting to changing world markets. Although the IMF, the World Bank, France, and the European Community were taking the lead in helping the government to deal with these problems, USAID/Cameroon was keen to play a role. The government's financial problems were seriously affecting the financial sustainability of two large USAID/Cameroon-supported institutions, the agricultural university and the national agricultural research center.

The most serious adverse effects of the system of government controls over the economy were on the agricultural export sector. The problems extended well beyond fertilizer distribution. Coffee and cocoa marketing was highly controlled by ONCPB. Other minor agricultural exports, such as bananas,

palm oil, and rubber, were controlled by parastatals. The end result was a highly inefficient marketing system that greatly reduced Cameroon's competitiveness on world markets.

Although it was widely recognized that these issues were all related and would have to be addressed in a coordinated manner, the USAID mission chose to focus on one issue that was of immediate interest to the government and could lead to more far reaching changes. The fertilizer distribution issue was easily defined, affected relatively few institutions, and required actions to implement the policy change that were within USAID/Cameroon's and the government's management capacity.

3. *Both the program's design and implementation were based on the sound analysis of key policy issues, the availability of well-qualified technical expertise, and an effective policy dialogue. The effective policy dialogue and competent technical assistance, which was provided at a cost of less than $2 million, was the primary reason for the success of the program. The $13 million of nonproject assistance, which was important in initiating the dialogue, was not a major factor during implementation.*

The removal of the fertilizer subsidy was a major policy change for the Cameroonian government. The subsidy was 70 percent of the full delivered cost. Removing this subsidy would clearly have a negative effect on fertilizer use and agricultural production. Prior to reaching an agreement with the government, the USAID mission commissioned a study of the fertilizer market to determine the returns to fertilizer use and the potential marketing efficiencies that could result from privatization. This study provided the government with the information it needed to assess the economic costs and benefits of removing the fertilizer subsidy and dissolving FONADER.

Another major issue was how the fertilizer supply system would be financed after privatization. Under FONADER, the government financed the entire marketing chain from initial purchase to final sale. The government could not see how a privatized system could deliver fertilizer to farmers unless the importers and distributors had access to financing. This led to USAID/Cameroon's providing nonproject assistance to create a revolving credit fund that would be available to commercial banks at low interest rates for on-lending to importers and distributors.

Finally, for the program to succeed, reliable private businesses would have to step in and fill the void left by FONADER. Discussions with the private sector indicated that the government had to be removed as much as possible from the administration of the program during the transition to a fully privatized system. This was achieved by assigning the management of the subsidy and revolving credit funds to a commercial bank (the fiduciary bank), which would disburse the funds according to clearly stated, publicly available guidelines. To help assure that the firms receiving government subsidies during the transition period were reliable, the program required that all imports be financed through commercial banks with these banks assuming all financial risk.

Resolving all of these issues required months of high-level dialogue and negotiation. In the end, both USAID/Cameroon and the government were satisfied that the proposed policy reform would lead to an improved and sustainable fertilizer supply system.

This focus on key government and private sector concerns continued during program implementation. Here the key factor was the ongoing involvement of USAID/Cameroon's Economic Analysis and Policy Reform Implementation Unit (EAPRI) and the system of annual reviews and workshops involving government officials, USAID officials, and private sector participants that had been built into the design. Serious implementation problems that could have derailed the entire process were encountered during the first two years. EAPRI became directly involved in solving these problems, and

addressed the concerns perceived by key government policy makers. The consultants brought in for the annual reviews were highly competent and also approached their work with the Cameroonian's government's concerns in mind. Their recommendations were made to the government, not to USAID/Cameroon, and, within the limits set by FSSRP conditionalities, the government had the final say on which recommendations would be accepted.

As a result of the high level of professionalism brought by the USAID/Cameroon staff and consultants to this process, and their careful attention to government concerns, the Cameroonian policy-making body overseeing the program (TSC) came to look to EAPRI and the USAID consultants for technical support in solving implementation problems. This was critical to the successful achievement of the privatization effort.

4. *Because the government and USAID/Cameroon initially saw the creation of the revolving credit fund as essential for the successful privatization of fertilizer marketing, the provision of nonproject assistance to create the fund was a critical part of the initial design. In the end, however, the fund was not used. The privatization effort would have been successful even without the $13.5 million of nonproject assistance.*

As previously noted, the government, through FONADER, financed each step of the fertilizer marketing system. USAID/Cameroon and the government were in agreement that some way would have to be found to provide this financing under a privatized system. USAID/Cameroon's agreeing to provide nonproject assistance to create a revolving fertilizer credit fund was critical in getting the government to agree to privatize fertilizer distribution. It was assumed that the private sector did not have the resources necessary to replace the financing that had previously been provided by the government.

The commercial banks, however, chose not to avail themselves of these funds, because they considered fertilizer marketing too risky. Fertilizer demand was declining, many of the distributors were financially weak, and the product was perishable. It is likely, however, that if the banks had had more liquidity and fertilizer markets had been stronger, banks would have been more willing to use the revolving credit fund for on-lending to importers and creditworthy distributors. This is likely to occur if economic conditions improve.

CHAPTER FOUR

ECONOMIC AND SOCIAL IMPACT

The previous chapter concluded that FSSRP was instrumental in establishing in Cameroon an effective, if inchoate, private sector fertilizer delivery system. The chapter concluded also that the competitive forces at work in this system resulted in decreased delivery costs and greater year-round availability of fertilizer. Fertilizer is now available in the project area on a more timely basis and at lower cost than would have been the case had the project not existed.

It is tempting to end the evaluation on this note. After all, the objective of the project as stated in the Action Memorandum was "to provide farmers with an adequate fertilizer supply in a timely and economical manner."[1] For this objective, the project was successful. In terms of development impact, however, fertilizer availability is not a sufficient success measure. The mere fact that fertilizer is available does not guarantee that it will be used correctly or used at all; and fertilizer use does not, by itself, necessarily lead to increased agricultural production or increased agricultural valued added.

It is important to know, therefore, not just if fertilizer was made available at lower cost, but also the extent to which and how the fertilizer was used and if its use resulted in increased agricultural production. The Action Memorandum, in fact, implicitly recognizes the linkage between policy reform and higher-level goals by explaining that:

> The fertilizer reform program is a vital link in the [Government of Cameroon] and USAID strategy for the agriculture sector. Providing farmers an adequate supply of fertilizer enables them to make more effective use of the high-yielding seeds and improved methods produced by research and development programs.[2]

The economic analysis in the project paper, moreover, concentrates on demonstrating that, under most assumptions for most crops, optimum fertilizer use increases production and is profitable for farmers in the project area. It seems clear, therefore, that the designers of the project assumed, if they did not make explicit, that the project would increase fertilizer use and that increased fertilizer use would increase agricultural production.[3]

In an impact evaluation it is also important to know who benefited from the effects of the program and how benefits were distributed geographically, by gender, and by socioeconomic strata. The first part of this chapter will, therefore, examine economic impact, concentrating on FSSRP's impact on fertilizer use and on agricultural production. The second part will examine issues of social impact.

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[1] Action Memorandum (September 1987), p. 1.

[2] Ibid., p. 2.

[3] The project paper did not include a logical framework. It did not provide quantitative measures of purpose or goal achievement or an explicit list of assumptions. The design's treatment of causal relationships is implicit rather than explicit. Fertilizer use and production objectives are, therefore, extrapolated rather than taken directly from project design documents.

ECONOMIC IMPACT

Fertilizer Use

Before FSSRP[4]

Fertilizer use has never been particularly widespread in Cameroon even by African standards. In 1985, a year of relatively high use, Cameroonian farmers were using only about 10 kilograms of fertilizer per hectare of arable land. As can be seen from Table 3, this usage lags far behind such African countries as Zimbabwe (64 kg/ha), Kenya (58 kg/ha), and Swaziland (55 kg/ha), and compares unfavorably even with West African countries with similar agricultural endowments: Congo (34 kg/ha), Togo (17 kg/ha), and Côte d'Ivoire (17 kg/ha).

These figures, however, mask the fact that fertilizer use had, in the late 1970s and early 1980s, gained considerable currency in particular regions and on particular crops, especially coffee and cotton. In the coffee growing areas, it was estimated that, in 1985, 75 percent of farmers used fertilizer on coffee. Among cotton farmers, this figure was close to 100 percent. In the coffee growing areas, moreover, farmers were, in the early 1980s, gaining experience with fertilizer use on food crops, especially those, like maize, that are commonly grown in association with coffee. By 1984, it was estimated that, in the coffee-growing areas of West Province, more than one-half of all farmers were using some fertilizer on food crops.

An important factor explaining this widespread use of fertilizer in the coffee growing areas was the government's 70 percent subsidy. At the subsidized price, farmers found it profitable to use fertilizer on most crops. When applied on time and in optimal doses, the value of the increased production that could be obtained from the use of fertilizer greatly exceeded the cost of the fertilizer itself plus the cost of the labor needed to transport and apply it. On the other hand, sensitivity analyses demonstrated that, with all other costs remaining constant, the profitability of fertilizer use would decrease substantially without the subsidy and would, in fact, become negative for some crops.

Table 4 presents, for several crops, benefit-cost ratios for subsidized and unsubsidized fertilizer as they existed just before the beginning of FSSRP.[5]

[4] FSSRP began in late 1987. Most of the "before" data used in the project documents are from the 1984 Agricultural Census or from data gathered by the International Fertilizer Development Center: IFDC, "Africa: Fertilizer Situation, 1993"; and IFDC, "Cameroon Fertilizer Sector Study," May 1986.

[5] Benefit-cost ratios are taken from the FSSRP project paper, 1987, or IFDC, 1986.

TABLE _

AFRICA
TOTAL FERTILIZER USE PER HECTARE OF ARABLE LAND, 1970-1990
(kilograms per hectare)

Country	1970	1975	1980	1985	1990
Algeria	18	18	34	41	18
Angola	4	1	6	7	3
Benin	5	2	1	8	5
Botswana	1	2	1	0.3	1
Burkina Faso	0.3	0.5	2	4	4
Burundi	1	1	1	2	2
Cameroon	4	2	5	10	4
Cape Verde	0	3	3	3	0
Central Af. Republic	1	1	1	2	0.5
Chad	1	2	0.3	2	2
Congo	58	18	4	34	14
Côte d'Ivoire	12	21	27	17	15
Egypt	137	186	290	375	416
Ethiopia	0.4	2	3	5	8
Gabon	0	2	0.3	1.0	4
Gambia	2	5	13	24	3
Ghana	3	23	11	11	11
Guinea	5	3	0.5	1	1
Guinea-Bissau	0	1	1	0	2
Kenya	30	25	34	58	30
Lesotho	1	4	15	12	14
Liberia	18	39	25	12	2
Libya	7	21	30	34	43
Madagascar	7	3	4	4	3
Malawi	5	7	14	14	20
Mali	3	1	7	10	7
Mauritania	1	6	7	10	9
Mauritius	220	244	267	280	277
Morocco	12	23	27	39	36
Mozambique	2	2	10	1	1
Niger	0.1	0.3	1	1	0.3
Nigeria	0.3	2	6	10	13
Reunion	238	278	85	280	257
Rwanda	0.4	0.4	0.1	2	4
Senegal	3	20	8	9	5
Seychelles	0	0	0	0	0
Sierra Leone	6	7	4	8	3
Somalia	3	4	1	4	3
South Africa	45	61	86	71	63
Sudan	3	8	7	7	6
Swaziland	40	56	110	55	38
Tanzania	6	11	13	14	18
Togo	1	4	5	17	19
Tunisia	10	15	20	30	29
Uganda	2	0.4	0.2	0	0
Zaire	1	2	1	1	1
Zambia	7	11	15	15	11
Zimbabwe	46	60	70	64	63
Africa	11	16	21	23	22
Sub-Saharan	4	6	8	10	10
Non-Sub-Saharan	35	48	67	72	67

Source: FAO Fertilizer and Production Tapes, 1992

TABLE 4

BENEFIT-COST RATIOS

Crop (Variety or Location)	Subsidized	Unsubsidized
Arabica Coffee (Java)	4.10	1.53
Arabica Coffee (Catura)	3.83	1.44
Robusta Coffee (Barombi Kang I)	2.85	.78
Robusta Coffee (Barombi Kang II)	2.54	.70
Robusta Coffee (Abong Mbang)	2.06	.56
Maize (Center Province – Yaoundé)	7.98	3.50
Maize (NW Province)	5.98	2.33

To compensate for risk, farmers usually need a benefit-cost ratio of at least 2 before they apply fertilizer. This means that, for every 100 FCFA spent on fertilizer and its application, farmers would expect the value of production to increase by at least 200 FCFA before they would decide to use fertilizer.

As can be seen from the above table, the benefits of using fertilizer in 1985 differed depending on location (the main variable being soil type) or variety. But benefits for all of the crops at all locations were more than twice the cost when the fertilizer was purchased at the subsidized price. On the other hand, if the subsidy had not existed in 1985, fertilizer use would not have been profitable at all on robusta coffee and would not have been profitable enough to compensate for risk on arabica coffee. By contrast, benefit-cost ratios on maize were highly favorable, even at unsubsidized rates. The positive results that could be obtained from using fertilizer on maize rather than on coffee explains why, even in 1985, an increasing number of farmers were diverting the fertilizer they obtained at subsidized rates, ostensibly for use on coffee, for use on maize and on other food crops. Interviews carried out during project design indicated that "leakage of coffee fertilizer (primarily sulfate of ammonia) into food crops may represent from 50 to 90 percent of consumption."[6] The small amount of fertilizer used on maize and other food crops is explained largely by the fact that coffee is an easily marketed cash crop whereas food crops are grown mostly for subsistence with surplus production sold in thin, easily saturated markets.

After FSSRP

By 1990, fertilizer use in Cameroon had declined to less than half its 1985 level. In 1985 Cameroonian farmers were using an average of 10 kilograms of fertilizer per hectare of arable land; by 1990, they were using an average of only four kilograms per hectare.

In the FSSRP area, fertilizer use began to decline significantly shortly after the project began. The best overall indicators of this decline are fertilizer imports and sales to distributors. As shown in Table 5, both imports and sales to distributors declined by two-thirds between 1989 and 1993. It should be noted that the 1991-1992 agricultural season was unusually long, extending until October. The longer season increased sales for that season and had the effect of shortening the 1992-1993 season and decreasing sales in 1993. For this reason, it is more accurate in depicting the most recent annual sales

[6] Project paper, Annex C, p. 1.

to use an average for the last two years, which is approximately 30,000 metric tons. Still, this represents less than one-half the sales that had occurred in the first full year of FSSRP.

FSSRP sponsored several surveys aimed at tracking fertilizer use over the life of the project. Three farmer surveys were carried out by government agencies, with FSSRP assistance, in 1990. One sampled 100 farmers in Northwest Province, a second 172 coffee growers in West Province, a third 426 farmers in all seven southern provinces. The results of these surveys were analyzed by an FSSRP consultant in 1991.[7]

TABLE 5

IMPORTATION AND SALES OF SUBSIDIZED FERTILIZER, 1989-1993
(metric tons)

	Beginning Stocks	Imports	Sales
1989	0	63,000	63,000*
1990	Negligible	64,000	25,000
1991	39,000	22,000	44,000
1992	7,000	31,800	38,900
1993	10,200	22,600	20,300

* Approximate

The data generated by the three surveys were not consistent, but, overall, the survey results confirmed a tendency toward declining fertilizer use that is evident from import and sales figures. The seven-province survey, which included Northwest and West Provinces, reported that 22 percent of all farmers were using fertilizer whereas about 30 percent of farmers had been using fertilizer in the first half of the 1980s. The seven-province survey found that the percentage of farmers using fertilizer in Northwest and West Provinces was 48 percent and 37 percent, respectively, compared with 61 and 46 percent in the preceding years.

The seven-province survey also showed that the largest decline in fertilizer use by 1990 had been among coffee growers. Whereas at least one-half and perhaps as many as three quarters of coffee growers were using fertilizer in the first half of the 1980s, by 1990 only 34 percent of all coffee growers were using fertilizer. The 1990 survey also distinguished between arabica coffee farmers and robusta coffee farmers, with two-thirds of arabica farmers still using fertilizer, but only one-fifth of robusta farmers using fertilizer. Use of fertilizer among food crop farmers was about the same as in earlier years although the results are not strictly comparable. The 1984 agricultural census reported that 14 percent of all "food crop farmers" used fertilizer. The 1990 seven-province survey reported that 11 percent of "maize farmers" were using fertilizer.

[7] Nicholas Minot, "Impact of the Fertilizer Sub-Sector Reform Program on Farmers: The Results of Three Farm-Level Surveys," Abt Associates and the University of Idaho/Post Harvest Institute for Perishables, April 1991.

A more recent survey of fertilizer use was sponsored by FSSRP in 1992.[8] This survey, which sampled 1478 farmers in all 10 provinces in Cameroon, found that, countrywide, the proportion of farmers using fertilizer in 1992 was down to 18 percent. The survey found further that fertilizer use among arabica coffee growers and robusta coffee growers was down to 20 percent and 19 percent, respectively. These figures are probably even lower in 1993. Group meetings with farmers during this evaluation indicated that most farmers were not using any fertilizer at all on coffee in 1993, especially on robusta. Many, if not most of these farmers were still obtaining their fertilizer through the coffee cooperatives to which they belonged, but were using most of this fertilizer on food crops.

Agricultural Production

Before FSSRP

Most agricultural production in Cameroon is in the hands of small farmers. The vast majority of farms are only one to three acres in size. In 1984, it was estimated that there were 1,100,000 farms in the country; of this number about 700,000 were in the seven provinces targeted by FSSRP. Virtually all farmers in the area grow food crops. Most food crop production is consumed by the farm family, but significant portions are marketed, depending on the crop. In 1984, about one quarter (262,000) of all farms in the country grew cocoa, and about one-third (363,000) grew coffee. All coffee farmers and almost all cocoa farmers are located in the seven southern provinces.

Table 6 presents data on the production of coffee, cocoa, and selected food crops for the 14 years prior to the beginning of FSSRP. Over this period, arabica coffee production declined significantly while robusta coffee and cocoa production increased slightly (less than 3 percent per year for robusta and less than 1 percent per year for cocoa).

After FSSRP

Starting in 1987, the Cameroonian economy entered a period of severe recession from which it has yet to emerge. Propelled by high international prices for petroleum products, as well as for the country's principal agricultural exports — cocoa and coffee — gross domestic product rose to a peak of 4,106 billion FCFA in 1986. In the years following, however, world market prices for coffee, cocoa, and petroleum — the country's principal export products — plummeted, and the U.S. dollar declined in value against the French franc to which the Central African franc is tied. These circumstances caused Cameroon's terms of trade to fall by more than one-half between 1985 and 1989 and resulted in a 15 percent decline in GDP by 1992. In real terms, per capita income in Cameroon decreased from an estimated $1,100 in 1986 to about $750 in 1992.

The recession hit especially hard at the agriculture sector, and particularly at coffee and cocoa. In the 1970s and for most of the 1980s, coffee and cocoa farmers were receiving an average annual total

[8] Ministère de l'Agriculture, Direction des Enquêtes Agro-Economiques et de la Planification Agricole, "Enquêtes Engrais 1992."

income, adjusted for inflation, of about 120 billion FCFA. By 1992, total income had fallen to about 30 billion FCFA.[9]

TABLE 6

PRODUCTION OF COFFEE, COCOA, AND MAIZE IN CAMEROON, 1973-1986
(metric tons)

	Robusta	Arabica	All Coffee	Cocoa	Maize
1973	62,767	33,226	95,993	106,896	300,000
1974	66,962	24,932	91,894	110,459	370,000
1975	55,047	26,131	81,178	107,503	350,000
1976	94,807	30,501	125,308	104,604	355,000
1977	61,493	27,503	88,996	81,711	300,000
1978	57,779	16,395	74,174	101,923	401,000
1979	71,313	19,420	90,733	105,780	480,000
1980	83,311	31,500	114,811	121,862	490,000
1981	86,795	24,639	111,434	119,511	500,000
1982	71,638	25,585	97,223	120,239	450,000
1983	103,235	22,002	125,237	106,050	400,000
1984	47,000	16,600	63,600	109,000	409,000
1985	119,000	20,000	139,000	120,080	337,000
1986	77,462	19,690	97,152	118,320	360,000

The decline, however, has not been even across all crops. As shown in Table 7, total coffee production declined by more than 50 percent in five years — from 147,000 metric tons in 1987 to 72,000 metric tons in 1992. Cocoa production also declined although not as quickly or as steeply. Cocoa production, which was at 133,000 metric tons in 1987, fell to 126,000 metric tons in 1990 and to 90,000 metric tons in 1992.

Maize production, on the other hand, increased significantly over this period — from 389,000 metric tons in 1987 to 513,000 metric tons in 1991.[10] On a nationwide basis, most of this increase occurred in 1991, but in the two provinces that are the largest maize producers as well as the largest coffee producers, West and Northwest Provinces, it is possible to detect a more gradual change as well as a more dramatic contrast with coffee production. Although coffee production in these two provinces declined over the period, maize production more than doubled in West Province and increased by one-third in Northwest province. Together, these two provinces accounted for 57 percent of total maize production in Cameroon in 1991.[11]

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[9] Losch, Bruno, Benoït Daviron, Claude Freud, Nicholas Gergely, et Frédéric Varlet, "Relance régionalisée de la production paysanne de café et de cacao au Cameroun: Etude de faisabilité, Phase 1: Cadrage général de la relance, Rapport," République du Cameroun, Ministère de l'Agriculture, Yaoundé: CIRAD, Octobre 1992, p. 10.

[10] Stéphane Conté, Jean Louis Fusillier, Lazare Iloga, Thomas Nkouenkeu, and Pierre Voufo, "Analyse Economique de la Filière Maïs au Cameroun," République du Cameroun, Ministère de l'Agriculture, Direction des Enquêtes Agro-Economiques et de la Planification Agricole. Report prepared for USAID/Cameroon's Cameroon Agricultural Policy and Planning Project, July 1993, Tables B.17 and B.26 (overleaf).

[11] Maize production figures are taken from Conté et al., 1993, Table B.26 (overleaf).

TABLE 7

COFFEE, COCOA, AND MAIZE PRODUCTION IN CAMEROON SINCE 1987
(metric tons)

	Robusta	Arabica	All Coffee	Cocoa	Maize
1987	123,998	22,860	146,858	128,031	389,269
1988	74,566	16,015	90,581	132,837	386,887
1989	117,667	19,536	137,203	123,939	366,735
1990	76,433	12,498	88,931	125,722	373,222
1991	73,199	10,453	83,652	103,000	513,381
1992	60,000	12,000	72,000	90,000	–

Source: For coffee and cocoa, République du Cameroun, 1992; for maize, Conté et al., 1993

Production of Irish potatoes, sweet potatoes, and soybeans has also increased nationwide over the past five to six years. The team's observations and interviews indicate that production of fresh fruits and vegetables (green beans, tomatoes, onion, okra, cabbage, peppers) may also have increased significantly over recent years although no data have been collected on the production of these crops since the agricultural census of 1984.[12]

FACTORS EXPLAINING CHANGES IN FERTILIZER USE AND AGRICULTURAL PRODUCTION SINCE THE START OF FSSRP

Profitability of Fertilizer Use

The reason for the sharp decline in fertilizer use is that, for most crops, fertilizer use had become unprofitable. This is best explained through an analysis of farm budgets. Accordingly, we have prepared farm budgets for arabica and robusta coffee and for maize, which are the three crops on which most of the fertilizer had been used in the project area.

For each of these crops, we have prepared two budgets.[13] The first budget assumes that the farmer is applying fertilizer in optimal recommended doses and is using all recommended agronomic practices — weeding, thinning, and the like — that are seen as required to obtain optimal fertilizer response. The second budget assumes no fertilizer use and only minimal care of the crop. Each budget includes two yield assumptions, a maximum and a minimum. The maize budgets also assume two

[12] Data on food crop production are taken mostly from Sama Joseph Nkwain, Ayissi Mballa J.P., and Festus A. Numfor, "Problems and Constraints of Cameroon's Food Crop Sub-Sector," a study prepared for USAID/Cameroon's Cameroon Agricultural Policy and Planning Project, University Center of Tschang, September, 1993.

[13] The detailed budgets for each crop along with explanatory notes are presented in Annex A.

different producer prices to take account of the price variations between regions and during different times of the year. For all of the crops, the assumed opportunity cost of labor is 500 FCFA per day.[14]

Arabica Coffee

For arabica coffee, net returns using fertilizer and other modern practices (Farm Budget A in the annex) are negative. Even though yields are high, the costs associated with obtaining these yields are greater than the receipts the farmer would obtain from coffee sales. With the high-input, intensive care package, in other words, farmers would actually lose money even when yields are as high as 1,000 kilograms per hectare. Returns to labor would be 100 FCFA per day lower than the opportunity cost of labor.

Under traditional farming practices using no fertilizer (Farm Budget B in the annex), on the other hand, net returns are positive. At yields of 500 kilograms per hectare the return to labor is 1,774 FCFA per day. At yields of 200 kilograms per hectare the return to labor is 574 FCFA per day. Because coffee is a perennial crop, farmers will obtain some production from their coffee trees even if they never visit the plantation during the growing season. Coffee trees will continue to produce some beans for as long as 20-30 years even when allowed to grow "wild." Farmer interviews indicated that this was, in essence, what farmers were doing at the time of the evaluation. Some farmers were still using fertilizer on coffee and some farmers were still weeding, thinning, and replanting. But most were not. Given the positive cost and return figures associated with Farm Budget B, it is easy to understand why this is so.

Robusta Coffee

We have constructed similar budgets for robusta coffee. Farm Budget C in the annex presents costs and returns to robusta coffee farming when the farmer uses fertilizer in optimal recommended doses and uses all recommended agronomic practices. When farmers in this category obtain a maximal yield of 900 kilograms per hectare, they break even — gross receipts are equal to total costs and the return to a day of labor is 500 FCFA, equal to the opportunity cost of labor. If, however, yields are at the more likely figure of 700 kilograms per hectare, the farmer incurs a net loss and the return to a day of labor is only 333 FCFA.

Farm Budget D presents costs and returns when a farmer applies no fertilizer, uses no other inputs, and uses only the labor necessary for harvesting and immediate postharvest processing. Yields are much lower, but returns to labor are quite high — 1,652 FCFA per day with yields of 450 kilograms per hectare, and 970 FCFA when yields are 700 kilograms per hectare.

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[14] Heavy labor, such as land clearing, is remunerated at a higher wage — about 800 FCFA a day. Less arduous work, like coffee "cleaning" may fetch as little as 400 FCFA a day; 500 FCFA a day is assumed to be a weighted average for most farm labor.

Maize

Surveys carried out under the auspices of FSSRP indicate that, if farmers in West and Northwest Provinces are using dramatically less fertilizer on coffee, they are using somewhat more fertilizer on other crops, especially maize. The analysis of the farm budgets for maize explains why this is so.[15]

Farm Budget E in the annex presents costs incurred when fertilizer is used in optimal doses. Returns are calculated at two different producer prices — 25 FCFA per kilogram and 45 FCFA per kilogram — and, for each of these prices, two different yield assumptions — an optimistic 4,000 kilograms per hectare and a realistic 3,000 kilograms per hectare. Under the most pessimistic assumption of low price and low yield, the return to a day of labor — 580 FCFA — is still higher than the opportunity cost of labor. Under the most optimistic assumption of high price and high yield, the return to a day of labor for maize reaches 1,773 FCFA.

Farm Budget F presents costs and returns for maize farming when no fertilizer is used. Under the most pessimistic assumption — a producer price of 25 FCFA per kilogram and a yield of only 1,500 kilograms per hectare — net returns are negative and the return to labor is lower than the opportunity cost of labor. Under the other three assumptions, net returns are positive and the return to labor exceeds 500 FCFA per day. But the returns without fertilizer are systematically lower than the returns when fertilizer is used.

In contrast to the use of fertilizer on coffee, in other words, the use of fertilizer on maize is indeed profitable even at the unsubsidized post-FSSRP price. There are still very few Cameroonian farmers who use fertilizer on maize, but the number is increasing, especially in Northwest and West Provinces. These cost and return differences help explain why farmers in the FSSRP areas who are still using fertilizer tend to be using it more on maize, and less on coffee.[16]

Privatization and Subsidy Removal

The only production factor that was affected by the FSSRP was the price and availability of fertilizer. The way to assess FSSRP's impact on production, therefore, is to determine what fertilizer use would have been had FSSRP not been implemented.

FSSRP affected the price of fertilizer in two ways. The elimination of the subsidy increased the price of fertilizer paid by farmers.[17] However, as previously discussed, the effect of the subsidy removal was significantly mitigated by the CIF and distribution cost reductions that were the result of

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[15] Data for maize budgets come mostly from Conté et al., 1993, pp. VI-11 to VI-13 and Tables B.37 and B.39, but with fertilizer and maize prices updated from evaluation findings.

[16] Interview information indicates that an increasing amount of fertilizer is also being used on vegetable crops. However, reliable farm budget data to analyze the economics of fertilizer use on vegetable crops was not available.

[17] From a methodological point of view, it can be argued that FSSRP was not really responsible for the removal of the subsidy. Because subsidy funds were basically depleted before the beginning of FSSRP, it is likely that the subsidy would have ended even if a USAID-financed program had not existed. USAID could, of course, have provided funding to maintain a subsidy at some level. However, USAID chose to make the deliberate and phased removal of the subsidy a major objective of FSSRP. For the purposes of this analysis, the elimination of the subsidy is treated as a program outcome that was at least influenced by, if not entirely caused by, FSSRP.

privatization. If the subsidy had been removed without privatization, the delivered price would have increased by 300 percent. With privatization, the increase was limited to 42 percent.

To answer what would have happened if there had been no FSSRP, we recalculated Farm Budgets A and C, which assumed optimal recommended fertilizer applications and high yields for Arabica and Robusta, respectively, substituting a fertilizer price that incorporates a 50 percent subsidy.[18] All other factors remain the same. The results are shown in Farm Budgets G and H. For arabica coffee, at both yield assumptions, returns are still negative and the return to labor is still below the opportunity cost of labor. For robusta coffee, returns are only positive at the highest yield assumptions. At the more realistic yield assumptions, it was still unprofitable to use fertilizer even at a 50 percent subsidy.

The conclusion of this analysis is that, under the conditions prevailing at the time of the evaluation, the removal of the fertilizer subsidy had only a marginal effect on the use of fertilizer. The analysis shows that if the subsidy had remained at its preproject level, farmers would still have been using very little fertilizer on coffee in the last year of FSSRP.

Declining World Coffee Prices

It is not necessary to engage in a great deal of sophisticated analysis to uncover the principal reason for the declines in fertilizer use and in coffee production. It is sufficient to point out that, between 1986 and 1992, world prices for robusta and arabica coffee dropped by 79 and 73 percent, respectively. During this same period, producer prices in Cameroon for robusta coffee dropped by 65 percent, and for arabica coffee, by 47 percent. These price declines are the main reason for the sharp drop in fertilizer use on coffee.

The point is reinforced by an examination of the relationship between, on the one hand, maize prices and, on the other hand, the use of fertilizer on maize and maize production. In contrast to coffee prices, the market price of maize remained fairly steady over the life of FSSRP although the price varied a great deal by month and by region. In 1992, retail prices in Northwest Province ranged from 76 FCFA per kilogram in September to 190 FCFA per kilogram in June. In 1989, the low price was about the same as it was in 1992 — 77 FCFA per kilogram in January — but the high price was lower, 160 FCFA per kilogram in July.[19] As pointed out previously, the use of fertilizer as well as maize production increased over the life of FSSRP.

Devaluation

What would happen to coffee production if the producer price were to increase? Would fertilizer use be profitable? The research for this evaluation was carried out in November 1993. At that time, the FCFA was exchanged with the French franc at a rate of 50 FCFA to 1 FF. In January 1994, the FCFA

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[18] As explained previously, the subsidy prior to FSSRP approached 70 percent, but the effect of privatization reduced the delivered cost to the farmer by about 40 percent. If private delivery of fertilizer had been employed prior to FSSRP, in other words, a much smaller subsidy would have been needed to deliver fertilizer to the farmer at the same price. For purposes of this analysis, we are using a subsidy rate of 50 percent even though this is actually higher than would have been needed for farmers to receive the fertilizer at the same price.

[19] Conté et al., 1993, Chapter Two.

was devalued by 50 percent, so that the new exchange rate with the French franc is now fixed at 100 FCFA to 1 FF.

The effect of this devaluation will probably be to double the FCFA value of exports, including coffee. Under the proposed agricultural marketing reforms, to be discussed below, most of these increases will be passed on to farmers. If all other factors remain equal, in other words, the 50 percent devaluation of the FCFA will increase the producer price of arabica from 200 FCFA per kilogram to 400 FCFA per kilogram and will increase the producer price of robusta from 150 FCFA per kilogram to 300 FCFA per kilogram. (These new prices, it should be pointed out, will still be less than they were in the mid-1980s.) The devaluation will, of course, also double the price of imports, including fertilizer. For Cameroonian farmers, the devaluation will increase the average price of fertilizer from 67 FCFA per kilogram to 134 FCFA per kilogram. It will also increase the price of pesticides.

Farm Budgets I and J in the annex are recalculated from Farm Budgets A and C for arabica and robusta, respectively, to show the effect of the devaluation on fertilizer profitability. Producer prices and fertilizer prices have been increased by 100 percent to reflect the 50 percent devaluation. The "Other Inputs" line item has also been increased to reflect an increase in the price of pesticides. Labor prices remain unchanged.

These budgets show that, under these new conditions, both arabica and robusta coffee farming using fertilizer and other modern practices will once again become profitable. Net returns will be quite handsome under highest yield assumptions: 145,500 FCFA per hectare for arabica and 105,400 FCFA per hectare for robusta. The returns to labor, moreover, will be about double the prevailing wage rate. Even at low yield assumptions, net returns will be respectable: 61,500 FCFA per hectare for arabica and 45,400 FCFA per hectare for robusta, and returns to labor will still be above the prevailing wage rate.

The conclusion of this analysis is clear. The main factor that has contributed to the sharp decline in coffee production over the past several years has been low producer prices. The low producer prices caused farmers to virtually abandon intensive coffee farming, in which the use of fertilizer is one element. It is also clear that the increased price of fertilizer was not the main factor, or even a particularly important factor, explaining the decline in coffee production. As shown in Farm Budgets I and J, if both coffee and fertilizer prices double, which is what is likely to occur as a result of the devaluation, it will once again be profitable for farmers to use fertilizer on coffee.

Another conclusion that can be drawn is that the impact of FSSRP on coffee farming, given the price conditions that are likely to obtain as a result of the devaluation, will have been positive. If we assume that the removal of the subsidy was inevitable, the contribution of FSSRP in lowering the delivered cost of fertilizer to farmers will increase the profitability of coffee farming when fertilizer is used.

Inefficient Coffee Marketing System

During most of the period covered by FSSRP, coffee marketing in Cameroon was heavily controlled. There were three basic systems: robusta coffee nationwide, arabica coffee in West Province, and arabica coffee in Northwest Province. All three systems had one element in common: they were all based on a producer price fixed by government and marketing margins set by ONCPB. The total of the producer price and the marketing margins equalled the "equilibrium price" — the total value of the coffee delivered to the port. The difference between this price and the international price FOB Douala was the ONCPB margin.

The main difference between the three systems concerned the marketing intermediaries. In West Province, arabica producers sold their coffee to one of six cooperatives for processing and resale to the apex organization, UCCAO, which had a monopoly over the purchase and export of arabica coffee grown in its province. In Northwest Province, arabica producers sold their coffee to one of 40 cooperatives, which then sold it to one of 11 cooperative unions for processing. These 11 cooperatives then sold the coffee to the North West Cooperative Association (NWCA), which acted as the ONCPB buying agent. ONCPB had the monopoly on arabica exports from Northwest Province. This meant that, in West Province, UCCAO kept the difference between the equilibrium price and the FOB price whereas, in Northwest Province, the margin was retained by ONCPB. For robusta, farmers sold their coffee to licensed buying agents who prepared the coffee for export, or to cooperatives that resold the coffee to the licensed buying agents. The coffee was then exported either directly by ONCPB or by the licensed buying agents acting as ONCPB agents.

This government-controlled system, with its absence of competition, had been in place since the 1960s. Because of the lack of competition, the marketing margins taken by ONCPB and the licensed marketing intermediaries steadily increased, thereby putting downward pressure on producer prices. A study carried out in 1992 by two French consulting firms found that marketing margins from the farm gate to the port in the mid- and late-1980s totalled 300 FCFA per kilogram for robusta coffee and 350 FCFA per kilogram for arabica coffee; the study estimated that the market-determined marketing costs for both products should have been in the range of 135 FCFA to 170 FCFA.[20] By the early 1990s, declining world prices had forced marketing margins down to their competitively determined levels, and the marketing organizations were all experiencing unsustainable losses.

There has not been much progress in improving the efficiency of robusta marketing, but USAID/Cameroon has started having some success with arabica marketing in Northwest Province under the Program of Reform in the Agriculture Marketing Sector (PRAMS) Project. One of the objectives of this project is to increase the efficiency of cooperative marketing activities in Northwest Province while gradually introducing full competition. When the program is completed, farmers will be free to sell to whomever they wish, and all price and marketing margin controls will be eliminated. In 1993, NWCA marketing costs had dropped to 200 FCFA per kilogram and can be expected to drop further with experience and with the introduction of full competition. This translates into a producer price increase of 100 to 150 FCFA per kilogram. As can be seen from the farm budgets for arabica, a price increase of this magnitude would greatly increase the returns to fertilizer use and other intensive farming practices.

Lack of Marketing Infrastructure and Services for Food Crops

The evaluation team found that fertilizers were clearly profitable on crops other than coffee. As previously discussed, one of these crops is maize. The returns to labor for the intensive maize farming package (Farm Budget E) can be as high as triple the opportunity cost of labor at current producer prices.

Total demand for maize in Cameroon approaches 500,000 tons per year, of which 350,000 tons is for human consumption (mostly subsistence production), 70,000 tons is for animal consumption, and the remainder is for industrial uses, mostly beer production.[21] Although maize production is clearly profitable at prices currently being paid for imports, the country continues to import 20,000 tons per year. The reason that this deficit cannot be met locally is that local marketing channels cannot provide

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[20] SATEC/LIA, "Etude des charges dites incompressibles des filières café et cacao," 1992.

[21] Conté et al., Chapter Three.

industrial users (animal feed producers and breweries) with the dependable supplies and consistent quality that they get from imports. Improved roads and storage facilities, and improved arrangements for quality control at the farm and village levels would go a long way toward solving this problem. If an efficient commercial maize industry could be developed in Cameroon, there would also be export possibilities to neighboring countries, especially Nigeria.

The evaluation team found a similar situation for vegetable production. Fertilizers are used widely on vegetable production because the returns to labor are so much higher. Although there is a very active fertilizer market in vegetable growing areas, the quantities of fertilizer purchased are very small (usually less than 50 kilograms per purchase) because the growers are not able to market large quantities. Here again, the constraint is market infrastructure and services. A study of vegetable export potential by a Canadian consulting firm found that there were potentially profitable markets for Cameroonian vegetables mainly in Europe, but also in Gabon if the marketing constraints could be overcome.[22]

Although the main use of fertilizer at the time FSSRP was designed was on coffee, fertilizer use on other crops may well, as the agriculture sector develops, greatly exceed its use on coffee. For this to happen, however, the marketing constraints facing crops other than coffee, especially food crops grown mainly by small farmers, will have to be addressed. As discussed earlier in this report, the efficiencies and market responsiveness of the private fertilizer supply system created by FSSRP will be much more effective in meeting the needs of a diversified commercial agricultural sector than the public sector system that preceded it.

Agricultural Research and Extension

As it had with all other public services, the recession that began in the mid-1980s had a severe impact on the availability of operating funds for agricultural research and extension, all of which are publicly financed, sometimes with donor assistance. Very little applied research is currently being carried out at any level, especially at the farm level. Extension agents at the provincial level have almost no funds for transportation or other costs needed to work with farmers. Coffee cooperatives, which have been hard hit by the decline in production, have severely cut back on farmer training activities that they once carried out.

One of the consequences of this lack of extension activity is a fair amount of ignorance among farmers as to the use of fertilizer on crops other than coffee. The minimum and maximum yield assumptions in all of the farm budgets show clearly that production response is a key factor in the profitability of fertilizer use.

One finding of this evaluation is that farmers are using more fertilizer on maize and on vegetable crops than they have in the past. But because the use of fertilizer on these crops is relatively recent, many farmers are not using the right kinds of fertilizer or are not using fertilizer correctly. In the 10-province farmer survey carried out in 1992, farmers were asked, for example, if there was a difference between NPK 20-10-10 and NPK 20-06-20 and also if there was a difference between urea and ammonium sulfate. More than 90 percent of the farmers responded that they did not know if there was a difference. The same survey found that only 54 percent of farmers who were using fertilizer had ever received any advice on its use from an extension agent. Interviews conducted during the evaluation, moreover, lead to the conclusion that private sector distributors are not particularly knowledgeable about

[22] Geomar International, "Cameroon — Promotion et Diversification des Exportations des Produits Agro-Alimentaires Camerounais, Rapport de Factibilité Phase II," March 1992.

the use of fertilizer and do not make much of an effort, in any case, to pass on whatever knowledge they have to their customers.

Conclusions on Factors Affecting Economic Impact

Conclusions on FSSRP's impact on fertilizer use and agricultural production and the factors affecting that impact are summarized below.

1. If the producer prices that prevailed at the beginning of the program had been maintained, FSSRP-induced marketing efficiencies would have maintained the profitability of fertilizer use on coffee, even after the subsidy was eliminated. By contrast, the decrease in coffee prices was so steep that, even if the subsidy had been maintained and even with the reduction in the delivered cost resulting from privatization, fertilizer use on coffee would have been unprofitable.

2. The main reason for the decrease in fertilizer use on coffee was the drop in world coffee prices; the next most important reason was the overvalued currency.

3. In the context of these two factors, the increased delivery price caused by the subsidy removal and the improved marketing efficiency caused by privatization had no significant effect on either fertilizer use or agricultural production.

4. The recent devaluation of the FCFA will once again make the use of fertilizer profitable and can be expected to bring about a significant increase in agricultural production. Under the new prices, the FSSRP-induced marketing efficiencies will have contributed to increased profits from coffee production and, therefore, increased income for coffee farmers.

5. In addition to these macroeconomic factors, key factors affecting fertilizer use include marketing constraints caused by underdeveloped marketing infrastructure and institutions, and low production response to fertilizer use caused by inadequate farmer knowledge about modern farming systems.

6. Improving the fertilizer supply system can help increase agriculture-based value added and employment, but the impact is maximized when other constraints to fertilizer use are addressed in a coordinated manner.

SOCIAL IMPACT

Who benefited from FSSRP and how were the benefits distributed? The two major categories of beneficiaries were farmers and private sector businesses involved in the importation and distribution of fertilizer. Benefits have, in general, been evenly distributed across gender and socioeconomic lines. In the short run, women farmers have probably benefited more than men farmers and the program appears to have reduced access to fertilizer in certain geographic areas where the levels of marketed agricultural surpluses are low.

Farmers and Farmer Income

The project was intended to make fertilizer available on a more timely basis and at lower cost to virtually all farmers in the coffee-growing areas of Cameroon. The project paper does not provide any

figures for this target population, but, based on recent census data, an estimated 716,000 farm families are in the seven-province area targeted by FSSRP. Of this number, about one-half, or 363,000, are coffee farmers.

Before the project began, 30 percent of all farmers in the seven-province area were using fertilizer on their crops. Among coffee farmers, 75 percent, or 272,000 farmers, were using fertilizer. Even at this relatively high percentage, however, farmer demand for fertilizer, at its subsidized cost, exceeded the amount that the government, because of its limited subsidy funds, could afford to make available to farmers. The result was that not all farmers who wanted fertilizer were able to get it. Among those who did get it, moreover, not all obtained the amount they wanted and many did not receive it on time.

The intention of the project, therefore, was to increase the number of coffee farmers who could obtain fertilizer and to increase the amount of fertilizer each farmer was able to obtain. The project paper did not express this in terms of number of farmers, but it did estimate that the effective demand for fertilizer in the central and western provinces was on the order of 150,000 tons per year.[23] It will be recalled that in the year the project began, Cameroon imported 63,000 tons of subsidized fertilizer. The project designers, in other words, foresaw a potential increase in fertilizer use among the target population of about 134 percent. Increased fertilizer use would, in turn, increase coffee production and farmer income. These expectations did not materialize. Instead of the increase that was forecasted, fertilizer use plummeted dramatically during the life of the project. By 1993, total subsidized fertilizer imports had declined to 20,300 tons. The percentage of all farm families in the target area using fertilizer declined from 30 percent to 22 percent. The decline was especially steep among coffee farmers. The 1991 survey sponsored by FSSRP indicated that, in West and Northwest Provinces, 78 percent and 44 percent of farmers, respectively, reported using less fertilizer than before the project began. Group interviews with farmers conducted during this evaluation indicated that very few farmers were using fertilizer on coffee. Following are some typical comments made by farmers during group interviews:

> I haven't used fertilizer on my coffee plants for three years, not because the price of fertilizer is too high, but because the price of coffee is too low.

> Because of the low coffee price I would not use fertilizer even if it were free because I would still have to pay someone to transport it and apply it.

As reported in the previous section, coffee production also declined dramatically over the project period, as did farmer income from coffee production. In real terms, total farmer income was, in 1992, only 25 percent of the level attained 10 years ago.

Thus, in an absolute sense, the projects's principal target population — coffee farmers — is worse off now than before the project began. Yet, it cannot be said that the decline in social welfare of this target population was caused by the project. The evidence, in fact, points to the opposite conclusion — that the project played a significant role in mitigating a decline in the economic welfare of coffee farmers that was about to occur for reasons entirely beyond the control of the project.

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[23] The project paper does not provide an explanation of how an effective demand of 150,000 tons was calculated. The figure seems reasonable, however. Assuming that most demand for fertilizer is for use on coffee; that the number of coffee growers in the country is, as reported, 360,000; that each coffee grower has, on average, one hectare of coffee; and that a minimum dosage of coffee is 500 kilograms per hectare, the demand would be 80,000 tons (360,000 farmers × 1 hectare × .5 kilograms per hectare). Accounting for some percentage of coffee growers who would use not any fertilizer, an effective demand of 150,000 tons per year seems reasonable.

As demonstrated in the economic analysis, the principal cause of the decline in farmer income was the sharp decline in the world prices of robusta and arabica coffee. The economic analysis also shows that the higher price of fertilizer brought about by the subsidy removal contributed only slightly to the decline in coffee farmer production and income. Furthermore, it could be argued that FSSRP was not the cause of the subsidy removal. By the time the project was designed, the government had reached the decision on its own that the subsidy would have to be eliminated because of the government's severe fiscal crisis.

Geographic Distribution of Income Benefits

Although the overall income effect of the project on farmers was positive, the geographic distribution of these effects was not even across provinces. This was because, although the use of fertilizer declined in every province, the decline was greater in some provinces than in others.

As reported earlier, about 30 percent of all farmers in the seven southern provinces were using fertilizer before the project began. Preproject surveys indicate that this percentage was 61 percent and 46 percent in Northwest and West Provinces, respectively. No preproject survey data are available on the other five provinces, but mathematical deduction would lead to an estimate that, on the average, 20-25 percent of farmers in these five provinces were using fertilizer.

By the end of the project, surveys indicated that fertilizer use had declined by about 20 percent in the two higher-use provinces: to 48 percent of farmers in Northwest Province and to 37 percent of farmers in West Province. In the other five provinces, however, the percentage of farmers using fertilizer had declined, on the average, by a much larger percentage. The percentage of farmers using fertilizer in these five provinces in 1991 was Littoral — 16 percent; South West 10 percent; and Center, East, and South — five percent each. This represents a decline of about 30 percent in Littoral province, almost 60 percent in South West Province, and nearly 80 percent in the other three provinces.

This uneven distribution is most likely the result of market factors and, in particular, of market size and transportation costs. When the distribution of fertilizer was administratively controlled, neither transportation costs nor the size of the market was a significant factor in making distribution decisions. More important factors were political considerations and rent-seeking opportunities. Once the market was privatized, however, such factors as transportation costs and the size of the market became much more important. The distributors interviewed by the evaluation team made it clear that their profit margins, and particularly their possibilities of covering such fixed costs as warehouse rental, depended to a large extent on the volume of their sales. For this reason, private sector distributors tended to shy away from the smaller markets represented by the five provinces where fertilizer use was almost entirely for robusta coffee production and was highly dependent on the large government subsidy.

One effect of privatization, therefore, is that benefits thus far have been limited largely to two provinces. There is some evidence, however, that this concentration may be dissipating. Whereas in the first year of the project, FSSRP fertilizer was being distributed to only three of the seven provinces, by year two some FSSRP fertilizer was getting to the other five provinces and, by year five, FSSRP fertilizer was arriving in all seven provinces. Also, as previously noted, because the private sector marketing system is more flexible than the previous government system, it will be better able to serve all regions as the agricultural sector becomes more diversified and fertilizer use become more widespread for a greater variety of crops.

Private Sector Importers and Distributors

The most immediate effect of the project was on the creation or expansion of private enterprises engaged in the importation and distribution of fertilizer.

Importers

Before the project began, the importation of fertilizer had been controlled by two or three private firms whose importation contracts were awarded through a government tendering process. Although there is no hard evidence, the conventional wisdom is that the price at which contracts were awarded was artificially inflated by the high overhead costs of these importers, by private arrangements between government officials and the importers, or by the time-consuming and cumbersome nature of the public tendering process. In general, competition, to the extent that there was any, was limited each year to these two or three firms.

The immediate result of the privatization policies adopted by the government in connection with FSSRP was a large increase in the number of importers entering the market. In the first year of privatization, 14 firms began vying for importation contracts with cooperatives and other distributors. Although only 2 or 3 of these firms actually imported each year, the result of this increase in competition was that the average CIF price of fertilizer declined in the first year of the project by 42 percent, from 97,600 FCFA per ton to 55,512 FCFA per ton. Little, if any, of this decrease in price was attributable to a decrease in the international price of fertilizer.

None of the old line firms, most of which were European, were among the successful fertilizer FSSRP importers. One of the interesting sidelights of the change in the composition of importers was that most of the successful importers were fully or partially American-owned. This led to charges by the old line firms that the real aim of FSSRP was to steer Cameroonian business to the United States. The employment and income effect associated with the creation of these new importing firms have been negligible. No more than 20 full-time and 100 part-time jobs have been created. However, these workers are employees of more efficient and financially sustainable firms than was the case under the preceding system.

Distributors

The most visible impact of the project has been the increase, over the five years of the project, in the number of private sector fertilizer distributors. Before the project began, virtually all distribution was in the hands of six cooperatives and cooperative unions. The cooperatives normally distributed fertilizer to farmers as credit-in-kind to be reimbursed when the farmers sold their coffee to the cooperatives. In this manner, a small number of cooperatives controlled both the distribution of fertilizer and the marketing of coffee. The only private sector distribution took place through unlicensed sales of fertilizer by coffee farmers to food crop farmers.

By the fifth year of the project, most fertilizer distribution was being handled by private merchants, and the distribution chain had become sophisticated enough to accommodate wholesalers and retailers of all sizes. Officially, there were 22 licensed distributors in the fifth year of the project. But most of the new distributors operated in the informal sector. In just four towns, the evaluation team encountered 12 or more private distributors ranging from wholesalers with 100 or more 50 kilograms bags of fertilizer in rented warehouses to merchants peddling urea by the cupful from open bags. Many

of these distributors had been in business less than a year and, in several cases, they had taken the place of distributors who had plied their trade unsuccessfully the previous year.

Several of the private sector distributors interviewed were acutely, sometimes even gleefully, aware that they were taking over shares of a market that had once been the virtual monopoly of regional cooperatives. They remarked, for example:

> The cooperatives are badly run; we are less expensive and, in fact, sell fertilizer to the cooperatives.
>
> We help farmers select the best fertilizer.

In all seven provinces, our estimate is that FSSRP has created the incentives for the creation of several hundred fertilizer distributors. Many, if not most, of these distributors were, and still are, probably in some sort of business other than fertilizer distribution. But the fact is that, before FSSRP, none of them had the opportunity to sell fertilizer because of the monopoly exercised by the government and by the cooperatives.

Women

FSSRP did not target women as a group. The project paper contained no discussion of the potential impact of the project on women, either as traders or as farmers. None of the traders interviewed by the evaluation team, moreover, was a woman. It should be noted, however, that the Cameroonian partner for the largest FSSRP importer is a woman.

On the farms, the shift in the use of fertilizer away from coffee, where the income is controlled by men, toward food crops (especially vegetable production), where the women have more of a say in how the income is spent, has been beneficial to women.

CHAPTER FIVE

COST-BENEFIT ANALYSIS

Despite FSSRP's relatively low impact on fertilizer use and agricultural production, it achieved a high internal rate of return. The program cost was $15 million, of which $13.5 million was nonproject assistance to finance a revolving credit fund, and $1.5 million was used to finance technical assistance to help administer the program. As previously discussed, the program could have been successfully implemented without the credit fund, but this was not known when the program started. Had USAID/Cameroon financed only the technical assistance, the benefit stream would have exceeded the cost before the first year had ended.

Three benefits were obtained from the program. First, and from the Mission's standpoint the most important, was the successful liberalization and privatization of the fertilizer market. A major objective of the USAID/Cameroon program at the time that FSSRP was designed was to reduce government controls over the economy and introduce open market forces. The Mission felt that the Cameroonian economy could not achieve sustained growth unless the pervasive system of market-distorting government controls was fundamentally reformed. From this standpoint, FSSRP was successful. The liberalization and privatization process went smoothly and many key government policy makers developed an improved understanding and appreciation of open markets. FSSRP's success was a major contributor to the eventual success of the PRAMS project in liberalizing and privatizing arabica coffee marketing. This particular economic benefit is not easily quantifiable but, given the size of Cameroon's economy, it is reasonable to assume that small increases in market efficiency would lead to large increases in value added.

The second benefit came from the reduced fertilizer marketing costs resulting from privatization. The underlying assumption was that private sector marketing systems were more efficient (less costly) than government systems. Not only did this assumption prove to be correct, but also the impact was greatly underestimated in the initial design. As previously noted, over the first five years of the program, private importers and distributors were able to reduce the CIF cost of fertilizer by 58 percent and the internal distribution costs by 18 percent, resulting in a 43 percent reduction in full delivered cost to the farm gate. Between 1987 and 1993, the full delivered cost of fertilizer dropped from $446 per ton to $257 per ton (using an exchange rate of 300 FCFA = $1), due almost entirely to increased efficiencies associated with FSSRP liberalization and privatization measures. Using existing fertilizer import levels (30,000 in 1993) the total savings to the economy amounted to about $5.7 million per year. This results in an internal rate of return of more than 30 percent for the $15 million program.

The third benefit is the increased agricultural value added that results from the fertilizer that is being used that would not have been used had there been no program. If it is assumed that the government would have eliminated the subsidy on fertilizer with or without FSSRP, the net effect of the program was to reduce the delivered price and, therefore, the profitability of fertilizer. Increased use also resulted from the fact that the private sector has been more effective in delivering fertilizer to where it is needed, when it is needed, than the previous public sector system had been.

There is no easy way to know what the level of fertilizer use would have been under the expensive and ineffective FONADER system, but it could easily have been less than half of what is now being consumed. Even at existing prices, distributors are finding farmers to be extremely price sensitive. Prior to the devaluation, there were very few crops on which fertilizer use was profitable. If fertilizer prices

were to double (which they would have if the subsidy had been removed without privatization), effective demand for fertilizer would have been almost wiped out.

Table 8 presents the FSSRP benefit-cost analysis. The cost stream reflects that the third installment of nonproject assistance was delayed because the credit fund requirements were less than projected in the design document. There are two benefit streams. The first is the savings to the economy from increased market efficiency: 30,000 tons of fertilizer multiplied by savings of $190 per ton. The second is the estimated increase in agricultural value added resulting from the increased profitability of fertilizers. The assumptions used in estimating the second benefit stream are:

- Fertilizer farm gate prices would have been double their existing levels had there been no privatization.

- At double the price, demand for fertilizer would have been half the present level, or 15,000 tons per year instead of 30,000.

- The increase in agricultural production resulting from the increased fertilizer use is at least double the value of that fertilizer (15,000 tons * $257/ton = $3.9 million). If the opportunity cost of land and labor were close to zero (a reasonable assumption during the prolonged recession currently under way in Cameroon), the increased value added net of fertilizer cost would be about $4 million per year. The benefit stream used in the table assumes that the opportunity cost of land and labor is equal to one-half the value of the increased production net of the cost of fertilizer.

- The assumptions are based on the predevaluation situation. As discussed in previous sections, the devaluation will make fertilizer use much more profitable. This will, in turn, increase the benefits of lower cost fertilizers to a multiple of what they would have been had there been no devaluation. For illustrative purposes, Table 8 shows slight increases in both benefit streams beginning in 1995. Given the very high rate of return and the hypothetical nature of the postdevaluation projections, any attempts at additional precision would be superfluous.

TABLE 8

BENEFIT-COST ANALYSIS
($ millions)

Year	Cost	Marketing Savings	Production Increase	Total Benefits	Net Benefits
1988	5.0	0.0	0.0	0.0	-5.0
1989	5.0	4.0	0.0	4.0	-1.0
1990	0.25	5.0	2.0	7.0	6.5
1991	0.25	5.0	2.0	7.0	6.5
1992	4.5	5.0	2.0	7.0	2.5
1993	0.0	5.0	2.0	7.0	7.0
1994	0.0	5.0	2.0	7.0	7.0
1995	0.0	6.0	3.0	9.0	9.0
1996	0.0	7.0	4.0	11.0	11.0
1997	0.0	8.0	5.0	13.0	13.0
Internal Rate of Return: 67%					

What this analysis shows is that, because of its economy-wide impact, FSSRP had a very high benefit-cost ratio, despite the adverse macroeconomic conditions that prevented its full potential benefits from being realized. Fertilizer consumption declined by half over the life of the program, but the benefits to the economy from the policy reform greatly exceeded its costs to USAID/Cameroon and the Cameroonian government.

CHAPTER SIX

IMPACT SUSTAINABILITY

POLICY SUSTAINABILITY

FSSRP's major achievement was to end the system of supplying subsidized fertilizer to coffee farmers through public sector agencies. Coffee farmers are now purchasing unsubsidized fertilizer from private sector distributors. This change implies a shift in government policy away from managed markets to open markets. This policy shift, however, is far from complete.

Part of the rationale for the fertilizer subsidy was that the government-controlled producer price was below the market price, and part of the difference was being returned to farmers in the form of subsidies as an inducement to use fertilizer. If the government continues to control producer prices for coffee, farmers could end up being paid below market prices for their products and paying the full market price for their fertilizer.

Progress in liberalizing agricultural markets has not been satisfactory. USAID/Cameroon, under PRAMS, has been working closely with the government to liberalize the arabica coffee subsector, and the European Community and France have been working on liberalizing the robusta coffee and cocoa subsector. After three years of effort, USAID/Cameroon and the government finally agreed to decontrol the arabica producer price and end all marketing monopolies, notably NWCA's in Northwest Province. This is happening two years behind the schedule originally agreed to in the PRAMS grant agreement.

Progress with robusta coffee and cocoa is even slower. ONCPB was to have ben replaced by a much smaller agency that was to have been responsible mainly for monitoring coffee and cocoa markets. Price stabilization and controls over marketing margins were to have been eliminated. The government started moving in this direction by eliminating ONCPB and replacing it with the much smaller Office Nationale de Café et de Cacao (ONCC), but the new agency still controls producer prices and marketing margins.

The Programme Spécial d'Importation d'Engrais (PSIE) experience also indicates that the government is less than fully committed to privatization. This program, funded by the European Community, was to have privatized the fertilizer supply system in the three northern provinces along the same lines as was accomplished under FSSRP in the seven southern provinces. What actually happened is that the government retained complete control of the European Community-funded revolving fertilizer credit fund and is using it to provide direct subsidized credit to the cotton parastatal, SODECOTON. SODECOTON determines the needs of the three northern provinces each year and imports, distributes, and sells the fertilizer to cotton farmers, financed entirely through the revolving credit fund. PSIE became a subsidized credit program for SODECOTON, with no effort to develop private sector supply channels.

A final indicator of the government's commitment to privatization is the experience with the privatization of parastatals under the World Bank's Structural Adjustment Program. This program has become bogged down, partly because the government is inexperienced in dealing expeditiously with the issues involved, but mostly because there are entrenched elements at senior levels of government resisting the change. Almost none of the dozens of parastatals covered under the program have yet been privatized.

There is, however, evidence of a gradual change in the government's mindset. The system of pervasive government controls, of which the fertilizer supply system was a part, stemmed from a basic belief that the government was more effective in bringing about development and equitable growth than the private sector. This led to the interwoven set of economic controls that exists today in Cameroon. This conviction that once permeated the government is now weakening as old-line, socially oriented bureaucrats are being replaced by younger, more market-oriented technocrats.

INSTITUTIONAL SUSTAINABILITY

In most USAID-financed projects, the concern for institutional sustainability revolves around the question of how organizational operating costs will be met once donor financing is no longer available. A typical donor project involves an investment in the creation or strengthening of some public sector facility — a road, a telecommunications system, an agricultural research organization. During the investment stage, the donor may be financing not only capital costs, but also such operating expenses as salaries, office supplies, or transportation. The sustainability question then becomes one of whether the government will be able to pay these operating expenses once the donor withdraws.

In FSSRP, this issue does not arise. The only institution that FSSRP has helped establish is a private sector market for fertilizer. The only organizations that are needed to sustain this institution are private businesses — importers, distributors, banks, and, of course, farms. The private sector organizations of this kind that FSSRP helped create or strengthen have, from the beginning, been paying all their own expenses. The extent to which they will be able to continue paying their own expenses will depend on market forces, not on public sector contributions.

There are no public sector institutions that are needed to sustain the private sector fertilizer market as such. On the contrary, one of the objectives of the project was to eliminate public sector involvement in fertilizer distribution. This was accomplished by the elimination of FONADER.

Some public sector organizations were created to facilitate the process of policy reform, to help phase out the fertilizer subsidy, and to establish and monitor procedures for the use of the revolving credit fund. These organizations included the project management units in USAID/Cameroon (EAPRI) and the government (the Technical Support Unit [TSU] and TSC). USAID/Cameroon was paying some operating expenses for one of these units (TSC). However, once all project funds have been disbursed and accounted for, these units will have served their purpose and will no longer be needed to sustain the policy reform or the private sector fertilizer market. A partial exception involves public sector monitoring of the use of the revolving credit fund. But this monitoring is now being carried out by civil servants whose salaries are paid entirely by the government, not with USAID/Cameroon funds. The government will presumably continue to pay the salaries of the individuals assigned to monitor the use of the fund.

There are, nevertheless, three public sector institutions whose strengthening would increase or at least rationalize demand for fertilizer. These are agricultural research, agricultural education, and agricultural extension. FSSRP did provide some funding to organizations affiliated with all of these institutions: to the Department of Agriculture to establish food crop trials and demonstrations and to the University of Tschang to carry out special studies and surveys. Through other projects, USAID/ Cameroon provided additional funding for Tschang and for an agricultural research service.

None of these institutions performs effectively in Cameroon. Additional assistance to these institutions could result in increased and more informed use of fertilizer by Cameroonian farmers, which

could, in turn, lead to increased agricultural production. However, the funding provided to these institutions through FSSRP was small. The continued functioning of these institutions, moreover, while desirable, is not essential to the sustainability of the private sector fertilizer market.

CHAPTER SEVEN

CONCLUSIONS AND LESSONS LEARNED

In the introduction to this evaluation we posed several questions that the evaluation would seek to answer. In the first part of this section, we will present, in summary form, the answers to those questions. In the second part of the section, we will present the lessons that USAID can draw from the experience of FSSRP.

CONCLUSIONS

1. Did FSSRP succeed in its immediate objective, which was the liberalization and privatization of fertilizer distribution in Cameroon?

   Yes, at least for fertilizer distribution aimed at the seven coffee-producing provinces. Fertilizer distribution destined for the three northern cotton-producing provinces is, however, still controlled by the government.

2. What factors contributed to the accomplishment of FSSRP's immediate objective?

   The successful accomplishment of the policy reform objective was attributable to two major factors.

   - First, there was effective policy dialogue during the entire design and implementation process. USAID/Cameroon provided competent staff and technical advisors who advised the Cameroonian government, initially on why the policy change was good for Cameroon, then on how to implement the new policy.

   - Second, the policy change addressed an immediate and strongly felt government need. For budgetary reasons, the government had a strong interest in terminating the fertilizer subsidy and dissolving the agency that administered the program. FSSRP enabled the government to disengage from fertilizer supply and facilitated the transition to the private sector. Although there was some resistance within the government, FSSRP was exactly what key policy makers in the Ministries of Finance and Plan wanted and needed at that time.

3. Did the achievement of the immediate objective contribute to the accomplishment of the intermediate objective, which was making fertilizer available to farmers on a more timely basis and at lower cost?

   Yes. CIF and internal distribution costs for fertilizer declined significantly as a result of the increased competition accompanying privatization. The private sector was also much more responsive to changing market conditions. Fertilizer is now flowing only to where there is an effective demand and is getting to farmers when needed and in the quantities needed.

4. What factors contributed to the achievement of this intermediate objective?

The major factor was, simply, the workings of the market. Once government controls were eliminated, private firms responded quickly to the market that was created. Another factor was the effective collaboration among key individuals and institutions, including government and USAID staff and technical advisors, that resulted in making key economic operators, especially importers and banks, aware of how they could gain access to the subsidies and to the RCF.

5. To what extent were the program's objectives relevant to the overall objective of USAID's agribusiness program, which is to add economic value, and to what extent did the program succeed in accomplishing this objective?

FSSRP's objectives were modest. They were aimed at policy reform. They did not have any specific objectives aimed at increasing economic value added, although some parts of design documents alluded to economic benefits in the agriculture sector that would result from the policy reform. In the short term, the program had little effect, one way or another, on agricultural production. During program implementation, agricultural production declined significantly in the program area, but for reasons unrelated to FSSRP. The main cause was the decrease in the farm gate price of coffee. If anything, FSSRP mitigated to some extent the production decline. However, the recent devaluation of the FCFA (which occurred after the data for this evaluation were collected), will almost certainly increase the farm gate price of coffee, thus providing an incentive for farmers to start producing coffee in greater quantities. At that point, the efficiencies in fertilizer distribution produced by FSSRP should increase the profitability of coffee production, thus providing an incentive for even greater production.

6. What factors contributed to the success or failure of the program in terms of its impact on the agriculture sector in Cameroon?

As mentioned above, FSSRP has had, to date, little impact on agricultural production. The major cause of the decline in coffee production was the dramatic decline in the world price of coffee.

7. What was the impact of the program on the distribution of benefits, including its impact on women?

The largest group of ultimate beneficiaries of FSSRP will be small farmers, almost all of whom must, by any standards, be classified among the poor in Cameroon. Another group of beneficiaries are private business people, including coffee importers and distributors. Most distributors, who constitute the larger of these two groups, are small business people who would also be classified among the poor in Cameroon.

The representative of one of the large importers working with FSSRP was a woman. None of the distributors interviewed by the team were a woman. There is some evidence that the shift in the use of fertilizer away from coffee toward food crops has benefited women because women tend to control the income from food crop sales.

8. What is the likelihood that whatever successes the program attained will be sustained?

The main success of FSSRP was in policy reform. Interviews with government officials indicated that the successful reform of the fertilizer distribution system has had a positive effect in demonstrating the impact of policy reforms aimed at liberalization and privatization. A recent

reform that, arguably, was helped along by the demonstration effect of FSSRP was the decontrol of arabica producer prices. One official told the team, perhaps somewhat hyperbolically:

> FSSRP has served as a sort of avant garde for the government's new policies of democratization, liberalization, and privatization.

However, resistance continues to more far-reaching reform within the government. Fertilizer distribution is still controlled by the government for the cotton-producing areas. There are still price controls on robusta coffee and cocoa, and almost no public sector enterprises have been eliminated or privatized. Perhaps a new generation of younger, more market-oriented government officials will eventually replace those now in power, many of whom are still inclined toward the command economy, and will complete the reforms that are now moving ahead slowly.

LESSONS LEARNED

1. The principal lesson to be learned from the experience of FSSRP is *the importance and potential effectiveness of policy reforms in bringing about positive changes in the agribusiness sector.* FSSRP's objective was the liberalization and privatization of the fertilizer distribution system. It achieved this objective and, in so doing, helped create a more efficient fertilizer market in Cameroon. The success of the policy reform demonstrated to government officials, moreover, that the private sector was more efficient in supplying fertilizer to farmers than the public sector. This set an important precedent for the privatization of other economic sectors. (For example, arabica coffee marketing has already been privatized based largely on the FSSRP experience).

2. In contrast, the experience of FSSRP shows that *a successful and desirable policy reform program does not guarantee that there will be a resulting increase in production and employment.* FSSRP was accompanied by declining fertilizer use and agricultural production. The reasons for this lack of impact provide two additional lessons regarding factors affecting agribusiness growth.

   - First, macroeconomic conditions and policies can create production constraints that negate the effects of successful agricultural programs or policy reforms. In this case, the drop in world coffee prices and the overvalued currency combined to make fertilizer use on coffee unprofitable, and greatly reduced the profitability of fertilizer use on maize, an important import-substitution crop. A currency devaluation in the late 1980s would have made fertilizer use profitable on coffee, maize and other crops and would have greatly increased FSSRP's impact on production, rural incomes, and employment.

   - Second, increasing agriculture-based value added requires an integrated approach. FSSRP addressed only one constraint — input supply. For the program to have had its maximum production impact, it should have been accompanied by agricultural marketing policy reforms, improved agricultural marketing infrastructure and services, and more effective public and private sector agricultural research and extension. The agricultural marketing policy reforms would have increased coffee producer prices, market system development would have expanded domestic and regional markets for food crops, and improved agricultural extension would have increased the production response to fertilizers, thus increasing their profitability. It is essential that policy reform programs not try to do everything at once, but it is also essential that specific reforms and activities fit into a comprehensive and well conceived overall strategy that addresses all of the constraints to increased agriculture-based value added.

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ANNEX A

FARM BUDGETS

FARM BUDGET A

ANNUAL PER HECTARE COSTS AND RETURNS OF PRODUCING ARABICA COFFEE
SCENARIO ONE: WITH OPTIMAL RECOMMENDED USE OF FERTILIZER

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER	KG	67	500	33500
OTHER INPUTS				9500
TOTAL INPUTS				43000
LABOR				
FERT LABOR	PERSON-DAY	500	24	12000
OTHER LABOR	PERSON-DAY	500	317	158500
TOTAL LABOR	PERSON-DAY	500	341	170500
DEPRECIATION				9000
TOTAL COST				222500
RETURNS @200 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		1000	
COST		223		222500
PROD. PRICE		200		200000
NET RETURNS		-23		-22500
RETURN TO LABOR				434
2. YIELD	KG		800	
COST		278		222500
PROD. PRICE		200		160000
NET RETURNS		-78		62500
RETURN TO LABOR				317

NOTES TO FARM BUDGET A

1. Recommended per hectare dosages of fertilizer for Arabica are two applications totaling 500 kg of urea.

2. Other inputs include insecticide, fungicide, and small tools purchased seasonally.

3. Fertilizer labor refers to the cost of transporting the fertilizer from site of purchase to the farm and as well as to the cost of applying it.

4. Other labor includes weeding, thinning, and especially harvesting.

5. Depreciation refers to the initial per hectare costs, depreciated over 30 years, of creating the coffee farm. Major costs include land clearing, planting of about 1300 seedlings, fertilization, and weeding.

6. Return to labor is calculated by subtracting nonlabor costs from gross receipts (producer price) and dividing by the total number of labor days.

FARM BUDGET B

ANNUAL PER HECTARE COSTS AND RETURNS OF PRODUCING ARABICA COFFEE
SCENARIO TWO: NO FERTILIZER, MINIMAL INPUTS, MINIMAL LABOR

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER	KG	0	0	0
OTHER INPUTS				2300
TOTAL INPUTS				2300
LABOR				
FERT LABOR	PERSON-DAY	0	0	0
OTHER LABOR	PERSON-DAY	500	50	25000
TOTAL LABOR	PERSON-DAY	500	50	25000
DEPRECIATION				9000
TOTAL COST				36300
RETURNS @200 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		500	
COST		73		36300
PROD. PRICE		200		100000
NET RETURNS		127		63700
RETURN TO LABOR				1774
2. YIELD	KG		200	
COST		182		36300
PROD. PRICE		200		40000
NET RETURNS		19		3700
RETURN TO LABOR				574

NOTES TO FARM BUDGET B

1. Farm Budget B assumes that farmers are using no fertilizer and no pesticides, that the only inputs are small tools for harvesting.

2. Other labor refers mostly to harvesting.

3. Depreciation refers to the initial per hectare costs, depreciated over 30 years, of creating the coffee farm. Major costs include land clearing, planting of about 1300 seedlings, fertilization, and weeding.

4. Return to labor is calculated by subtracting nonlabor costs from gross receipts (producer price) and dividing by the total number of labor days.

FARM BUDGET C

ANNUAL PER HECTARE COSTS AND RETURNS OF PRODUCING ROBUSTA COFFEE
SCENARIO ONE: WITH OPTIMAL RECOMMENDED USE OF FERTILIZER

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER	KG	67	400	26800
OTHER INPUTS				9200
TOTAL INPUTS				36000
LABOR				
FERT LABOR	PERSON-DAY	500	24	12000
OTHER LABOR	PERSON-DAY	500	156	78000
TOTAL LABOR	PERSON-DAY	500	180	90000
DEPRECIATION				9000
TOTAL COST				135000
RETURNS @150 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		900	
COST		150		135000
PROD. PRICE		150		135000
NET RETURNS		0		0
RETURN TO LABOR				500
2. YIELD	KG		700	
COST		193		135000
PROD. PRICE		150		105000
NET RETURNS		-43		-30000
RETURN TO LABOR				333

NOTES TO FARM BUDGET C

1. Recommended per hectare dosages of fertilizer are two applications totaling 500 kg of urea.
2. Other inputs include insecticide and small tools purchased seasonally.
3. Fertilizer labor refers to the cost of transporting the fertilizer from site of purchase to the farm and as well as to the cost of applying it.
4. Other labor includes weeding, thinning, and especially harvesting.
5. Depreciation refers to the initial per hectare costs, depreciated over 30 years, of creating the coffee farm. Major costs include land clearing, planting of about 1300 seedlings, fertilization, and weeding.
6. Return to labor is calculated by subtracting nonlabor costs from gross receipts (producer price) and dividing by the total number of labor days.

FARM BUDGET D

ANNUAL PER HECTARE COSTS AND RETURNS OF PRODUCING ROBUSTA COFFEE
SCENARIO TWO: NO FERTILIZER, MINIMAL INPUTS, MINIMAL LABOR

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER	KG	0	0	0
OTHER INPUTS				4000
TOTAL INPUTS				4000
LABOR				
FERT LABOR	PERSON-DAY	0	0	0
OTHER LABOR	PERSON-DAY	500	33	16500
TOTAL LABOR	PERSON-DAY	500	33	16500
DEPRECIATION				9000
TOTAL COST				29500
RETURNS @150 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		450	
COST		66		29500
PROD. PRICE		150		67500
NET RETURNS		150		66530
RETURN TO LABOR				1652
2. YIELD	KG		300	
COST		98		29500
PROD. PRICE		150		45000
NET RETURNS		52		15500
RETURN TO LABOR				970

NOTES TO FARM BUDGET D

1. Farm Budget B assumes that farmers are using no fertilizer and no pesticides, that the only inputs are small tools for harvesting.

2. Other labor refers mostly to harvesting.

3. Depreciation refers to the initial per hectare costs, depreciated over 30 years, of creating the coffee farm. Major costs include land clearing, planting of about 1300 seedlings, fertilization, and weeding.

4. Return to labor is calculated by subtracting nonlabor costs from gross receipts (producer price) and dividing by the total number of labor days.

FARM BUDGET E

ANNUAL PER HECTARE COSTS AND RETURNS OF MAIZE PRODUCTION
SCENARIO ONE: WITH OPTIMAL RECOMMENDED USE OF FERTILIZER

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER				
NPK	KG	67	200	13400
UREA	KG	67	100	6700
SEED (LOCAL)	KG	20	100	2000
OTHER INPUTS				1900
TOTAL INPUTS				24000
LABOR				
FERT LABOR	PERSON-DAY	500	12	6000
OTHER LABOR	PERSON-DAY	500	76	38000
TOTAL LABOR	PERSON-DAY	500	88	44000
TOTAL COST				68000
RETURNS @25 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		3000	
COST		23		68000
PROD. PRICE		25		75000
NET RETURNS		2		7000
RETURN TO LABOR				580
2. YIELD	KG		4000	
COST		17		68000
PROD. PRICE		25		100000
NET RETURNS		8		32000
RETURN TO LABOR				864
RETURNS @45 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		3000	
COST		23		68000
PROD. PRICE		45		135000
NET RETURNS		22		67000
RETURN TO LABOR				1261
2. YIELD	KG		4000	
COST		17		68000
PROD. PRICE		45		180000
NET RETURNS		28		112000
RETURN TO LABOR				1773

NOTES TO FARM BUDGET E

1. Maize farm budgets are based on data collected during the evaluation as well as from Conté et al., 1993, Annex Tables B-37 and B-39.

2. Other inputs include insecticide, and small tools purchased seasonally.

3. Fertilizer labor refers to the cost of transporting the fertilizer from site of purchase to the farm and as well as to the cost of applying it.

4. Other labor includes land clearing, planting, weeding, harvesting, and husking.

FARM BUDGET F

ANNUAL PER HECTARE COSTS AND RETURNS OF MAIZE PRODUCTION
SCENARIO TWO: NO FERTILIZER

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER	KG	0	0	0
SEED (LOCAL)	KG	20	100	2000
OTHER INPUTS				1900
TOTAL INPUTS				3900
LABOR				
FERT LABOR	PERSON-DAY	0	0	0
OTHER LABOR	PERSON-DAY	500	76	38000
TOTAL LABOR	PERSON-DAY	500	76	38000
TOTAL COST				41900
RETURNS @25 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		1500	
COST		28		41900
PROD. PRICE		25		37500
NET RETURNS		-3		-4400
RETURN TO LABOR				442
2. YIELD	KG		2000	
COST		21		41900
PROD. PRICE		25		50000
NET RETURNS		4		8100
RETURN TO LABOR				607
RETURNS @45 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		1500	
COST		28		41900
PROD. PRICE		45		67500
NET RETURNS		17		25600
RETURN TO LABOR				837
2. YIELD	KG		2000	
COST		21		41900
PROD. PRICE		45		90000
NET RETURNS		24		48100
RETURN TO LABOR				1133

NOTES TO FARM BUDGET F

1. Maize farm budgets are based on data collected during the evaluation as well as from Conté et al., 1993, Annex Tables B-37 and B-39.

2. Other inputs include insecticide, and small tools purchased seasonally.

3. Other labor includes land clearing, planting, weeding, harvesting, and husking.

4. Return to labor is calculated by subtracting nonlabor costs from receipts (producer price) and dividing by the total number of labor days.

FARM BUDGET G
EFFECT OF REINTRODUCING A 50 PERCENT SUBSIDY

ANNUAL PER HECTARE COSTS AND RETURNS OF PRODUCING ARABICA COFFEE
SCENARIO ONE: WITH OPTIMAL RECOMMENDED USE OF FERTILIZER

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER	KG	33	500	16500
OTHER INPUTS				9500
TOTAL INPUTS				26000
LABOR				
FERT LABOR	PERSON-DAY	500	24	12000
OTHER LABOR	PERSON-DAY	500	317	158500
TOTAL LABOR	PERSON-DAY	500	341	170500
DEPRECIATION				9000
TOTAL COST				205500
RETURNS @200 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		1000	
COST		223		222500
PROD. PRICE		200		200000
NET RETURNS		-23		-22500
RETURN TO LABOR				484
2. YIELD	KG		800	
COST		278		222500
PROD. PRICE		200		160000
NET RETURNS		-78		-62500
RETURN TO LABOR				367

FARM BUDGET H
EFFECT OF REINTRODUCING A 50 PERCENT SUBSIDY

ANNUAL PER HECTARE COSTS AND RETURNS OF PRODUCING ROBUSTA COFFEE
SCENARIO ONE: WITH OPTIMAL RECOMMENDED USE OF FERTILIZER

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER	KG	33	400	13200
OTHER INPUTS				9200
TOTAL INPUTS				22400
LABOR				
FERT LABOR	PERSON-DAY	500	24	12000
OTHER LABOR	PERSON-DAY	500	156	78000
TOTAL LABOR	PERSON-DAY	500	180	90000
DEPRECIATION				9000
TOTAL COST				121400
RETURNS @150 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		900	
COST		135		121400
PROD. PRICE		150		135000
NET RETURNS		15		13600
RETURN TO LABOR				576
2. YIELD	KG		700	
COST		173		121400
PROD. PRICE		150		105000
NET RETURNS		-23		-16400
RETURN TO LABOR				409

FARM BUDGET I

EFFECT OF THE DEVALUATION
ANNUAL PER HECTARE COSTS AND RETURNS OF PRODUCING ARABICA COFFEE
SCENARIO ONE: WITH OPTIMAL RECOMMENDED USE OF FERTILIZER

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER	KG	134	500	67000
OTHER INPUTS				12000
TOTAL INPUTS				79000
LABOR				
FERT LABOR	PERSON-DAY	500	24	12000
OTHER LABOR	PERSON-DAY	500	317	1 `500
TOTAL LABOR	PERSON-DAY	500	341	170500
DEPRECIATION				9000
TOTAL COST				258500
RETURNS @400 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		1000	
COST		259		258500
PROD. PRICE		400		400000
NET RETURNS		142		141500
RETURN TO LABOR				915
2. YIELD	KG		800	
COST		323		258500
PROD. PRICE		400		320000
NET RETURNS		77		61500
RETURN TO LABOR				680

FARM BUDGET J

EFFECT OF THE DEVALUATION
ANNUAL PER HECTARE COSTS AND RETURNS OF PRODUCING ROBUSTA COFFEE
SCENARIO ONE: WITH OPTIMAL RECOMMENDED USE OF FERTILIZER

	UNIT	UNIT COST	QUANTITY	TOTAL COST
INPUTS				
FERTILIZER	KG	134	400	53600
OTHER INPUTS				12000
TOTAL INPUTS				65600
LABOR				
FERT LABOR	PERSON-DAY	500	24	12000
OTHER LABOR	PERSON-DAY	500	156	78000
TOTAL LABOR	PERSON-DAY	500	180	90000
DEPRECIATION				9000
TOTAL COST				164600
RETURNS @300 FCFA/KG IF YIELDS ARE:				
1. YIELD	KG		900	
COST		183		164600
PROD. PRICE		300		270000
NET RETURNS		117		105400
RETURN TO LABOR				1086
2. YIELD	KG		700	
COST		235		164600
PROD. PRICE		300		210000
NET RETURNS		65		45400
RETURN TO LABOR				752