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LIBERIA

Food Aid: PL-480 Title I Program Study

by

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The views and interpretations expressed in this report are those of the authors and should not be attributed to the Agency for International Development.

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executive summary

The Liberian economy is in desperate straits. Gross domestic product is declining even in nominal dollars. Real per capita GDP has declined almost 20 percent between 1980 and 1985. Government debt and its servicing have continued to escalate. Exports have not provided their traditional support, and World Bank forecasts for exports are not encouraging.

Liberia has not enunciated a clearly defined, agreed-upon, plan for national development in general nor for agricultural development in particular. In spite of limited infrastructure support, the traditional sector of smallholder, subsistence farmers has shown growth. The potential for increasing incomes and GDP through investments in this sector warrant attention and continued support. Although initial investment will be high they will yield very high returns over time. The agricultural sector accounts for over half of Liberia's population and about 30 percent of GDP.

At this time, the question of self-reliance versus self-sufficiency may be moot. Self-reliance requires ever-increasing exports to pay for imported rice to feed ever-increasing populations. With population growth rates exceeding three percent, dwindling foreign exchange reserves, and sagging commodity exports, Liberia needs to focus upon increasing its own agricultural outputs. Even though self-sufficiency in rice may not be attainable, a program focused on self-reliance could be costly, in terms of foregone national output from an important sector.

The Government of Liberia needs to implement clearly defined programs to support the smallholder farmer. Parastatal estates have not eliminated the numerous constraints which limit these farmers' productivity. Considerable potential exists for reducing the magnitude of the food gap in Liberia. The time required for significant reduction depends on the rate with which <u>non-price</u> incentives are put in place. Small incremental increases in food output from the 176,000 traditional farms in total can lead to significant reduction in the nation's food gap and an increased contribution to national GDP. Strategies to reduce the production and also marketing constraints need to be articulated into a practical plan for food producers. Projects need to be evaluated on the basis of these strategies.

Without such a program, dependence upon food, and particularly rice, imports will worsen. Rice imports are projected to increase from 120,000 MT in 1986 to over 150,000 MT by 1992, given current trends and historic, structural relationships. Commercial rice imports will satisfy part of this gap, provided that local currency depreciation is arrested. Even so, the remaining gap will increase from 32,000 MT in 1986 to almost 35,000 MT in 1992. If this remaining gap is filled by PL-480 imports, program levels

at 1986 prices would need to increase from $11 million in 1986 to $18 million in 1992. Such program levels may be necessary until agricultural productivity increases and marketing capabilities are achieved.

PL-480 imports for the period 1980 - 1986 have enabled GOL to postpone the need for $76 million in reserve assets. Program levels for 1987 - 1992 would defer an additional $66 million in reserve asset needs. Usage of PL-480 counterpart funds for development purposes has the potential of increasing gross domestic product by about $8.26 million by 1992 above and beyond direct PL-480 funding levels of 1b million.

For the period FY 80 through FY 85, the portion of PL-480 rice sale proceeds equal to the PL-480 loan agreement were used by GOL for development purposes. The FY 86 PL-480 agreement stipulates that all net sales proceeds are to be used for development purposes including the rice stabilization fund. Since mid-1984, PL-480 sale proceeds have been the only source of funds for GOL's development budget and GOL's counterpart support to other donor projects.

Effective use of development funds requires a national program sharply focused on strategies minimizing the effects of current constraints imposed on smallholder farmers. Recommended strategies for intervention in the rural milieu are:

1. Enhancement of technology generation and diffusion through improved research and extension capabilities addressing the unique physical and social characteristics of Liberia.

2. Improvement of the rural physical infrastructure to provide efficient movement of agricultural inputs and outputs, to increase market accessibility, and to facilitate timely information-delivery.

3. Elimination of market imperfections so that prices truly transmit supply and demand signals through the analyses and delivery of marketing data, the development of marketing standards, and the inclusion of <u>many</u> market participants.

4. Development of socially suitable intermediary institutions for mobilizing savings and credit delivery among smallholder farmers for investments in new agricultural technologies and rural "industries" linked to agricultural production and rural household consumption.

5. Improvement of educational and health care systems to enhance entry of the rural population to modernized systems through increased labor productivity and management capabilities.

The strategies taken together comprise the "non-price" incentives needed to mobilize increasing output from the rural sector. Investments in these strategies will create the "rural surplus" which will ultimately pay for the roads, schools and health facilities. These are strategies for growth, applicable at early stages of development, aimed at increasing the productivity, output and welfare of the nation.

All of these strategies require not only substantial levels of funding but also consistent funding. On and off disbursements of funds by the GoL and donors negate the potential impact of all strategic interventions for development.

The utilization of available PL-480 counterpart funds should be compatible with longer term strategies. Extremely important is support for maintaining a significant level of momentum in development. In the near term, self-help agreements should emphasize those measures which specify and strengthen support for various development initiatives now in place. Further, self-help agreements should be fashioned with the intent to reduce foreign exchange needs and increased use of local public and private institutions, local labor and materials. At this particular time a continuing dialogue and high level of understanding between the GoL and donors are essential. Important now is the need to maximize the use of PL-480 counterpart resources for the support of building stronger linkages to structural reforms and needed policy orientation for enhanced progress in development.

The merits of specific development projects depend upon effective implementation and coordination of the above strategic interventions. Even though weak in implementation capability and hampered by severe financial constraints, Liberia must firmly express intent to proceed even under difficult circumstances. At this critical time in Liberia's history, USAID and other donors need to "go the extra mile" in a highly coordinated approach. An attitude of "wait and see" will accelerate the impending crisis.

Best Available Document

Acknowledgments

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I. OBJECTIVES OF THE STUDY

USAID/Liberia is currently preparing a long term development strategy for the period 1983-1992 which will determine the levels and mix of ESF, DA, and PL-480 resources. The purposes of this study are to propose recommendations for PL-480 Title I program levels and also for alternative uses of sale proceeds for the period 1988-1992. Recommendations and proposals will take into account the near-term economic/social prospects and the impact of available resources on the development of the Liberian economy.

II. BACKGROUND

A. General Economic Situation

1. National Economy

The Government of Liberia and the Liberian economy are at a critical economic juncture. As shown in Table 1, gross domestic product is in a state of decline even in nominal terms. Real gross domestic product per capita (1971 dollars) has declined from $272 in 1980 to $201 in 1985. At the same time, total outstanding debt and annual debt service continue to climb. Both the IMF and the World Bank have temporarily suspended additional lending activities pending the GOL's repayment, at least partially, of previous debt arrears. Insolvency is not out of the question.

Complicating the problem is the dualistic nature of the Liberian economy (USAID, op. cit., pp. 1-3). About 40 percent of GDP is generated by rubber, iron ore, and timber concessions which have limited linkages to the national economy and whose fortunes are largely determined by international commodity prices for iron ore, rubber, and timber. The remaining 60 percent of GDP is about evenly split among Government of Liberia (GOL), a modern sector, and a traditional sector. Within the modern sector, over half of the commercial enterprises and over three-fourths of total investments are controlled by resident foreigners.

As noted in Table 1, exports are a sizable portion of gross domestic product; and the balance of merchandise trade has traditionally been positive. Major exports have been iron ore, timber, rubber, coffee, and cocoa. Declines in these export values and price increases for oil have weakened this positive trade balance during the 1970s and early 1980s. Liberia's overall current account balance, moreover, has been negative over the years requiring offsetting movements in capital accounts and/or reserve settlements. There have been significant outflows for service payments, investment income, royalties, and debt service (Dyrick, May 1984, p.

TABLE 1

LIBERIA: GROSS DOMESTIC PRODUCT, DEBT, AND MERCHANDISE TRADE (1980-85)

Year	Nominal GDP a/ (millions$)	Real GDP b/ (millions$)	Per Capita Real GDP c/ (dollars)	Nominal NFS & Merchand. Exports (millions$)d/
1980	1115.8	510.7	273	613.5
1981	1094.8	497.0	257	540.7
1982	1111.0	495.4	249	510.6
1983	1060.5	483.5	235	465.1
1984	1070.4	473.3	230	438.1
1985	1052.2	473.1	221	470.3

a/ GDP at Market Prices, Monetary and Traditional Sector

b/ 1971 = 100

c/ Data furnished by Economic Research Service, USDA; all other data furnished by USAID/Liberia

d/ NFS is nonfactor services

TABLE 1
(Continued)

Percent exports of GDP	NFS & Merchandise Trade Balance (millions$)	Current Account (millions$) c/	Total Outstanding Debt (millions$)	Total Debt Service (GOL BY) (millions$)
53	- 30.5	-102.0	NA	42.2
49	- 23.2	- 62.0	NA	62.5
45	45.2	- 59.0	NA	71.4
44	5.3	136.0	920	93.5
46	65.4	- 77.0	920	118.1
45	155.8	N/A	1,300	179.1

In addition, previous Government borrowing, especially for the CAU facilities, and deficit spending have led to a near collapse of the monetary sector and foreign exchange shortages. Inefficient public corporations have contributed to the drain upon Government finances (USAID/Liberia, Congressional, p. 223). Several of the potentially profitable parastatals are in arrears regarding payments to the Government.

Complicating matters further has been the rapidly deteriorating investment climate and flight of capital out of the country, precipitated initially by the 1980 political instability and further exacerbated by the minting and release of approximately $57 million Liberian dollars. The U.S. dollar has progressively disappeared from the domestic Liberian economy. It was reported in West Africa that Liberians, Liberian organizations and businesses incorporated in Liberia have on deposit over $2.36 billion in Swiss bank accounts alone. (West Africa, 3-25-86). Several people have indicated that the U.S dollar currently trades for approximately 1.5 Liberian coin dollars.

2. Export Markets

Liberia also faces problems with its major exports which have been the major sources of economic growth. Iron ore reserves which can be profitably recovered are expected to be depleted during the 1990s (Myrick, May 1984, p. 33). Timber exports, mainly to Europe, have begun to recover with the depreciation of the U.S. dollar. A new timber operation has recently started inland from Buchanan. Both rubber prices and quantities exported by the concessions are dependent upon world crude oil supplies and prices. As listed in Table 2, quantities exported declined in 1982 and then substantially recovered by 1985. However, reflecting low world prices for rubber, export values in 1985 were only 75 percent of the record in 1980 (MOA, Production). Coffee exports, both quantity and total value, have been variable. Liberia is a relatively small supplier to the world market. Coffee prices are dependent upon conditions in other major coffee producing countries, for example, Brazil. To our knowledge, Liberia has not yet exceeded its world quota for coffee. Cocoa production and export values have remained fairly stable during the period 1982-85.

TABLE 3

MAJOR AGRICULTURAL EXPORTS OF LIBERIA

	Quantity			Value ($1,000)		
Year	Rubber (MT)	Coffee (1000 lbs)	Cocoa (1,000 lbs)	Rubber	Coffee	Cocoa
1960	76,500	18,223	9,500	102,200	27,715	11,225
1961	76,500	18,402	13,904	86,700	19,307	12,987
1962	80,100	21,953	10,187	83,400	22,673	8,775
1983	76,600	18,973	12,835	73,100	20,659	11,704
1984	87,500	11,000	13,111	81,300	13,990	14,576
1985	87,247	23,984	11,632	77,100	27,272	11,952

Source: MOA, Production estimates, 1985

Coffee and cocoa prices will likely remain strong (USAID, PAAD). Coffee prices are expected to be in the range of $2.00 to $3.00 between 1987 and 1989. Cocoa prices are expected to be bolstered by the Fourth International Cocoa Agreement. Coca prices in September 1986 were already above World Bank projections. As a small supplier to the world market, Liberia should be able to increase both its coffee and cocoa exports without any effect on world prices. Prices for natural rubber are projected to increase. Tropical hardwood prices are expected to increase. Timber sales benefit from a high income elasticity of demand. Production is expandable within Liberia; however, forestry management practices are necessary to prevent depletion of this resource. Natural forest regeneration is a lengthy process taking 40 to 100 years.

3. Agricultural Economy

Both monetary and traditional sectors of agriculture exist within Liberia. The monetized sector of approximately 3,000 commercial farms produces rubber, coffee and cocoa as the major cash crops (AID, Presidential, p. 5). The traditional sector is composed mainly of subsistence farmers whose principal product is upland and/or swamp rice grown mainly for home consumption. About 23 percent of domestic rice production is sold to non-rice producers, that is, other rural and urban consumers and markets (Bonnard, p. 7). Vegetable crops are frequently intercropped with upland rice. In 1980, the monetized agricultural sector contributed 13 percent and subsistence agriculture 16 percent of Liberia's gross domestic product. (MPEA, Memorandum, p. 29). MPEA estimated that between 1977 and 1980 the monetary agricultural sector grew 4.9 percent and the traditional sector by 1.2 percent per year (MPEA, Memorandum, p. 79). Rural population growth is estimated to be 1.6 percent per year (FAO, Atlas). Much of the traditional sector's growth, especially in rice, has come from expansions of planted acreage rather than yield increases (MOA, Production, p. 11). This translation of population growth into acreage expansion has led to a shortening of the fallow in rice production and an eventual decline in natural soil fertility.

- Government of Liberia Development Objectives

In contrast to many third world nations, documentation of announced developmental goals currently does not appear to be available as a comprehensive national document. Possibly the first National Plan was that authorized by the National Planning Council, entitled "Socio-Economic Plan, July 1976 - June 1980". The last such national document which would qualify in terms of its national comprehensiveness is the "Second National Socio-Economic Plan". This was prepared during the pre coup economic crisis to cover the period 1980-84 but became inoperative after the April 1980 coup. The stated objectives are laudable, i.e., to achieve diversification, improved distribution of income, promotion of private and public investment in agriculture and increased Liberianization. Since 1980, any changes in announced national goals were minor and appear to be ad hoc and are found in several papers and documents and in the annual budgetary allocations to the various Ministries.

The most recent document, the Economic Recovery Program (ERP) issued in September 1986 retains much of the earlier development objectives, but recognizes the severity of the current financial situation and presents a budgetary plan for 1986-1989 to deal especially with GOL fiscal deficits, debt payment arrears, and deteriorating investment climate. The ERP proposes a drastic retrenchment of expenditures in a number of sectors and indicates an intent to establish a process for the privatization of a number of State enterprises. In view of the severity of the current crisis, the hopes expressed for recovery in the ERP likely will not be realized during the plan period. (MPEA, ERP, 1986)

The worldwide inflation, oil price inflation, and economic recession in the 1970s and 1980s have adversely affected Liberia's development progress. Ad hoc approaches have been the mode of dealing with continuing crises.

C. Agriculture Sector Policies

1. Background

Shortly after April 1980 the coup, a report entitled Liberia's Agricultural Development Policy and Organizational Structure, was prepared which outlined policy and objectives for agriculture (often referred to as The Blue Book). The stated objectives were to "create opportunities for Liberian subsistence farmers to earn adequate income from farming, to make more productive use of Liberian agricultural resources, and to increase agricultural output. "Striving for food self-sufficiency... will remain an objective" (MOA, Blue book, 1981, p. 15).

The strategies to attain development objectives included appropriate concerns for a coordinated and effective agriculture research, extension and training , institutional and infrastructure support, and an improved capability for carrying out sector policy and analysis.

Further, the report criticized the development role of the several parastatals with a particular viewpoint that the Ministry of Agriculture, through its own proposed reorganization, would be able to absorb the various extension, research and training activities of the parastatals. It also suggested that the various parastatals continue only as production and/or marketing corporations.

As background for the need for reorganization of the MOA the report expressed the desire to move from a project orientation to program focus orientation. The new focus was advanced because each new project "incorporated elements to provide all or major portions of its requirements for extension, research, training and administrative services", leading to "ad hoc administration of projects, to duplication and waste of development resources" and resulted in the MOA becoming only "an umbrella Agency for administering projects" (MOA, Blue book, p. 6, 24).

The current decentralization theme often expressed by the MOA has its roots in the strategy components of this document and led to a limited reorganization of the Ministry of Agriculture which exists at present in broad outlines.

Large development projects, many of them through the various parastatal bodies, continue to be implemented. The current extremely difficult economic circumstances and the donor propensity for support of discrete projects preclude

the full achievement of the proposed reorganization of the MOA. It is probable that the intent of the proposed changes in organization to achieve more program focused orientation will not be realized for some time because of the general malaise in the GOL. In general, this report is substantially correct in assessment of problems and in understanding the need for restructuring of projects and needed program focus to move agricultural development forward.

The current effort in the MOA to revise the Blue Book probably reflects in part the continued high level of frustration and disappointment in the performance of the agricultural sector.

Attached to MOA memorandum dated January 28, 1986, was an abbreviated agricultural policy statement that was presented to the CAU/ECA mission on January 28, 1986. It acknowledged the President's high priority of food self-sufficiency and noted that the President hoped to launch the Green Revolution program. This recent statement on agricultural policy drew heavily on chapters 3 and 4 of the Blue Book. (MOA, Agr. Policy Draft, 1985)

The draft policy statement also noted that it reflected "a general set of long-term goals" expressed by the majority of the participants in the March 1985 Agricultural Policy Seminar (MOA, Proceedings, 1985).

The goals outlined in the seminar were stated as follows:

a) continued efforts towards achieving a high level of food self-sufficiency,

b) efficient use of Liberia's land resources,

c) increased commercialization of farms to obtain higher per capita income,

d) improved social services, health and education.

The document also lists ten immediate development goals which are specific and "within our financial limits (both internally and with external assistance) and which are achievable in the future." (MOA, Proceedings, 1985)

The immediate development goals were formulated in the following points:

1) An increase in the quantity of rice produced.

2) An increase in the production of cassava and other secondary staples.

3) A more complete understanding of the uses and potentials of cassava and secondary staples.

4) An increase in the production of cattle, poultry, fish and other high protein foods.

5) An improvement in the production and supply of vegetables throughout the year.

6) Improvement and strengthening of applied and adaptive agricultural research in the staples, animal husbandry, fishery, vegetables and selected tree crops.

7) Promotion of agro-processing and food preservation.

8) Although emphasis will continue to be on small farmers, commercial farming will also be encouraged, most especially where the technology is known and the analysis shows that these are economically viable.

9) An improvement of the marketing system for agricultural produce to ensure stable and fair prices so as to encourage the production of these items.

10) Investigate and encourage the growing of non-traditional agricultural products that have export potential.

Implementation strategies are indicated for the immediate term and the long term. Generally, these strategies are in support of the above ten specific goals. The strategies would build on the proposed developmental structure of the MOA and their implementation objectives would be generally acceptable for most donor requirements for continued support.

A diversion from the intent of the draft Agricultural Policy Statement was another effort. It was stimulated by the President, resulting in the design of another implementation strategy, the "Green Revolution". This report veers sharply from the rather clearly stated goals and implementation strategy set forth in the Blue Book and the Agricultural Policy Statement.

The Green Revolution proposes the establishment of agricultural production estates, one in each Liberian county. This proposal acknowledges that at present the GOL "in its efforts in food production depends primarily on the rural integrated development projects (ADPs). The report states that the estates are "designed along-side the ADPs but will cater in developing small, medium, and large farms and provide a strong marketing network".

The Green Revolution proposal envisages 10 estates employing agricultural trained graduates, the provision of supervised credit packages, and the building of extensive infrastructure, including adaptive research and extension, to serve the estate. The estates are expected to be self-sustaining after a period of four years.

The technical coefficients for a number of the production proposals used in the document are well above those achieved in either Europe or the U.S. The management and investment requirements are so high that the prospect of success is indeed dim. Without commenting further on the economic viability of the estates, the proposal obviously runs counter to the views expressed in the Blue Book relating to a program orientation, for reduction in duplication, desire for decentralization, etc.

This proposal represents a reversal in the intent indicated in the Blue Book with respect to agricultural parastatals and the impact of these projects on duplication and waste of development resources.

2. Food self-sufficiency versus self-reliance

Virtually every African nation has made food self-sufficiency central in its development objectives. Only several nations can exercise the option of choosing self-reliance or food security by virtue of fortunate circumstances of being able to generate foreign exchange from cash crop exports or from mineral exploitation to cover the deficiencies in domestic food output in face of rapidly expanding demand. Given the small size of the Liberian economy, its high dependence on mineral and timber exploitation, and the limited prospect of manufacturing that could be competitive either in intra-African trade or in world markets, food self-sufficiency objectives, in the near term, are appropriate. Mineral and timber exploitation as the chief source of foreign exchange in the long run, especially as these resources are depleted, will not be sufficient to cover the food gap in view of rapidly increasing food demand. At present rates of growth, the total population will double within 25 years. Self reliance is not possible in the near term.

The issues involved in attaining self-sufficiency and alternative means to achieve food security were subjects discussed and debated at the Liberian Agricultural Policy Seminar 1985. (MOA, Proceedings, 1985. One theme which was presented that few would disagree with, was that "the highest form of self-sufficiency is food security". (Tweeten, Rogers, Proceedings, p.42). These authors recognized the high costs, in terms of national income foregone, of the current policy to provide producer incentives for rice production.

Prominent in the proposals was one of modifying GOL policies by helping producers improve their income by shifting to tree crops (coffee and cocoa) and elimination of export taxes on these crops. Proposed also was a levy on rice imports to encourage domestic production and an insurance fund to purchase rice in periods of short supply from accumulated variable levies. In addition, a buffer stock of rice would be established as a further insurance to achieve food security.

The success of these shifts in policy interventions rely heavily on the "market solution" and "frictionless" performance of the market. These proposals would encounter the same set of infrastructure constraints that have impeded producer response to rice incentives. Deficiencies in road network and in proper storage techniques for two additional crops will have to be addressed. One cannot assume that government incentive price signals will remain in place long enough to obtain response or that prompt and full payment to producers can be assured. The cost of the modified approach would remain high and be more difficult to administer.

This modified approach would expose the Liberian food economy to two sets of price volatility i.e., rice import prices and cash crops export prices. This translates into considerably more instability in domestic food prices and balance of payment difficulties. As Aboyade pointed out that a more open trade regime "makes the setting of countervailing domestic producer-price incentives more problematic and supply response effects more difficult to monitor and insulate" (IFPRI, Abcyade, p. 7,8). Furthermore, Liberia is a "price taker" and a residual supplier for both coffee and cocoa.

The requirements for a much more extensive data base would have to be met in order to deal with adjustments to increased variability in international commodity prices. The management and implementation tasks of achieving self reliance (food security) objectives might well be beyond the present capability of the GOL.

As Mellor concluded, the search for domestic self-sufficiency in food must be sought in non-price incentives and structural change., (IFPRI, Mellor). Steps toward food self reliance require that infrastructure and markets are developed and in place to cope with the needs of a "trading regime" involved in international markets. This can best and more efficiently accomplished with initial emphasis on domestic self-suffiency centered on enlarging the marketable surplus through infrastructural improvements. Such improvement will encourage the introduction of productivity increasing technology as well as improved markets. Greatly improved productivity in the food sector is the first step in moving toward self reliance.

3. Entities for Achievement of Agricultural Development Goals

Liberia leaders have demonstrated a propensity to establish state-owned organizations and enterprises to accomplish a multiple set of objectives. Liberia adopted these public directed structures precisely at the time when the uncle parastatal structure on the Continent was being severed from colonial relationships and protection, and thus from the beginning had to face the rigors of the world market in cash crops in competition with sister nations already experienced in technology adaptation, input and infrastructure support.

Adaptation of the parastatal approach to food crops has been attempted in the post-colonial period in a number of countries in the struggle to deal with declining per capita food output, with results less than expected and typically at high costs. Liberia's own attempt in estate rice production schemes in the late 1960s and 1970s were unsuccessful ventures. (USAID, Mission, 1982)

A more recent proposal by the World Development Corporation, a U.S.-based firm, for a large-scale mechanized rice scheme for Liberia in October 1981, noted in the Presidential mission report, is another example of the extremely limited post-coup capability for policy formulation and analysis and a focus on a consistent development plan. Fortunately, this scheme did not materialize.

4. Present GOL Capacity

The present developmental investments and activities are essentially extensions of the plans and actions taken by the GOL prior to the coup. The serious economic straits in which the GOL is presently, leave few practical alternatives for either the GOL or the donor community to initiate more effective implementation strategies for development. About all that can be done is to effect marginal changes and "fine tuning", hoping the resources will be available on a timely basis.

Liberia's investment in development is supported by approximately 15 international bilateral and multilateral donor agencies. Most of the donors tend to emphasize assistance to health, education, agriculture and to some extent in infrastructure-building. Multinational organizations, while giving support to achieve structural reforms, have been involved in policy reform activities, reduction in public sector roles, reduction in size of the public labor force, and in technical assistance for improvement of public sector management.

USAID, the largest bilateral donor is involved in supporting a broad range of strategic interventions as well as efforts to improve public sector management. Since USAID is essentially supporting the entire GOL development budget, the local support to most all donor projects falls on the PL-480 Title I generated funds.

The donor community is forced to adopt a "wait and see" mode. Given that official international development assistance (ODA) has declined in recent years, the "wait and see" mode may prevail for some time ahead for Liberia. There are more attractive opportunities in other countries for the available and declining development assistance resources.

III. Policy and Implementation Aspects of PL-480 Title I in Liberia

A. Policy as applicable to Liberia

A brief review of AID policies worldwide with respect to in-country operational features of PL-480 Title I might be useful. Prior to 1972, sales proceeds from this program were U.S.-owned and were deposited in an interest bearing account in a bank in the recipient country. Since 1972, AID policy directed that sale of currency generated from the sales of PL-480 commodities accrue immediately to the local government. This policy change also indicated that programming the use of these funds would be largely left to the host country. It was felt that monitoring a fungible resource would be difficult and that doing so would run counter to general AID desire to reduce U.S. involvement in host country affairs.

In order to enhance the developmental impact of PL-480 resources, AID policy shifted again in 1976 with respect to programming of these resources. Missions were encouraged, where possible, to engage in more active participation with the host country in the programming of local currency generated from PL-480 sales.

As volume of sales and thus counterpart generated funds increasingly became a larger share of total host country development resources, special problems arose with respect to their effective use. In 1982, AID policy guidelines were modified to generally encourage more active participation by Missions in recipient countries in programming of local currencies generated. The degree of AID involvement was to be flexible and depended on the recipient countries' economic/political situation.

Because of the sheer volume and increasingly larger proportion of local currency generated resources in relation to the recipient country's total development allocations, this directive provided Missions in some countries more opportunity to enhance the potential effectiveness of their use. It made possible earmarking proceeds through use of special accounts, and imposing conditionality through the use of specific self-help measures to influence allocations to fund the more appropriate development projects. This approach hoped to reduce allocations to poorly designed development efforts and to minimize diversions for politically motivated projects.

.. Implementation History of PL-480 Title I Program in Liberia

The economic/social situation following the coup in April 1980 led to the initiation of the PL-480 Title I program. The immediate need for budgetary and balance of payments support and fear of rice shortages resulted in intense discussions between the new government and the Mission. The first Agreement was signed on August 13, 1980. It was amended several times within a few months resulting in increasing levels of support from the initial $5.0 million to $10.0 million. Subsequently, annual Agreements, the last being signed on April 23, 1986, have been negotiated at levels ranging from $6.0 to $15.0 million.

The Liberian Produce Marketing Corporation (LPMC) was designated as the agency of the GOL for importing and marketing PL-480 Title I rice. LPMC was also responsible for depositing sales proceeds in a special account. It was required to prepare and submit various reports on Title I sales inventories, etc., to the GOL and to USAID.

The agreement executed April 23, 1986, in contrast to the earlier agreements, spells out in considerable detail, operational details and attempts to fix responsibilities for actions called for. The self-help measures, which by legislative intent were to result in improving the lives of the poor and to increase their capacity of participating in the country's development, have become more operational in GOL management and in prompt reporting of sales and disbursements. It encouraged the GOL to select high priority development projects for funding. It also suggested that the GOL adopt policies to encourage private sector development in the agricultural sector.

The necessity for the detailed specifications of the agreement reflect accumulative deficiencies in performance by the GOL beginning from the very first agreement. Data on sales proceeds allotted and expended on each project by agreements show delayed disbursements to projects, often extending over a period of several years. Numerous examples of lapses in GOL performances would be cited such as closing out the PL-480 special account in May 1984. Further, it was reported in an audit report that commodities valued at over $14.0 million had not generated counterpart funds because LPMC made credit sales to wholesalers many of which are still outstanding and made transfers of commodities in kind to GOL organizations, officials, and parastatal organizations.

Obviously, obtaining compliance by the GOL on agreed upon reporting, operational and management requirements is most difficult. Further, shortfalls and the delayed allocations and disbursements of counterpart funds to development projects have clearly had a negative impact on ongoing projects.

While commercial importers may have access to foreign exchange resources and the capability to fill the rice gap, these imports do not generate funds to support the development budget. This would mean that the development budget would be dependent on GOL general revenue funds only.

It appears that in spite of the serious debt and liquidity problems of the GOL, USAID has been able to maintain a development program with substance through its intense efforts to obtain, to the maximum extent possible, the effective use of counterpart funds for development. Since mid 1984, PL-480 Title I sales have provided the funding for the entire GOL development budget.

IV. PL-480 Program Issues and Impacts

In the implementation of the PL-480 program, several issues and potential impacts arise. Major areas of concern are the use of PL-480 sale proceeds, the impact on foreign exchange, possible incentives or disincentives affecting Liberian rice farmers, use of sale proceeds to stabilize rice prices, and the choice of an appropriate, responsible agency for program management. Other issues to be investigated later in this report concern usual marketing requirements and the physical capacities of warehouses and port facilities.

A. GOL Development Budget

Since its inception in 1980, rice, with a U.S. Sales value of $82 million has been sold to Liberia under the PL-480 Title I program. Currently, an FY 87 agreement is being considered. Under the Title I Program the U.S. Government lends funds to the GOL for purchase of rice f.o.b. Gulf. These are long-term loans at low interest rates with interest only payable during initial years. The current loans are for 40 years with 2 percent interest payments only for the first 10 years and then amortization at 3 percent for the remaining 30 years. Proceeds from the sale of PL-480 rice within Liberia hereafter referred to as counterpart funds, accrue to the GOL and under the agreement are to be mutually programed for development projects.

Prior to U.S. FY 86' sales proceeds at least equal to the U.S. loan amount were used to fund a list of mutually agreed upon development projects. For FY 86' USAID estimates that the $11 million PL-480 Loan agreement will generate an additional $9 million after costs because of the differential existing between U.S. rice prices and the official retail prices set by the GOL. The FY 86 memorandum of Understanding stipulates that the $20 million in net sales proceeds will be used for projects and purposes mutually agreed upon by MPEA and USAID. GOL has budgeted somewhat more than $20 million for its FY 1986/87 development budget, but has not consulted with USAID on which of the projects would receive counterpart funds. The GOL has been informed that mutual agreement on a list of projects totalling $20 million will be required before negotiations from the FY 87 TITLE I Program can begin.

Counterpart funds are used to finance the GOL portion of the GOL Development budget. Reflecting the priorities mutually agreed upon by GOL and USAID, agriculture and rural infrastructure receive high priority. For GOL budget year 1986/87, approximately 46 percent of the funds are budgeted for agricultural development, 16 percent for roads, 7 percent for housing, 6 percent for health, and 5 percent for communications. See Annex C for more detail.

Counterpart funds are used for to fund GOL contribution to the projects of the U.S., World Bank, EEC, and other governments. Since mid-1984, the only source of funds for the GOL's internal development budget, and hence counterpart funds, has been sale proceeds under the PL-480 program. This situation is not expected to change in the near future. For example, $5 million of PL-480 loan funds were budgeted by GOL to match an additional $34.7 million from donors during GOL's 1985/86 budget year (National Bank of Liberia, 1986, p. 55). Priorities for using counterpart parts are, in order, USAID projects, other donors' projects, and GOL projects.

It is important to note that amounts budgeted in the GOL's development budget are not necessarily equal to expenditures. Expenditures have typically been less than the counterpart generation. For FY 80 through FY 84, there remains a balance of $1.5 million (ACDB A/C 410); and for FY 85, there is a remaining balance of $1.5 million (ACDB A/C 103); both accounts as of October 1986.

Several major donors, including the World Bank, are reluctant to implement extensions or finance new projects because of GOL's debt arrears which force a halt in disbursements and inadequacy of GOL funding. If foreign donors' grants and loans decline, the GOL may have less need for counterpart funds.

c. Foreign Exchange and Macro-economic Impacts

The availability of PL-480 rice defers the GOL's need for foreign exchange to fund current imports. In addition, the wise use of counterpart funds can lead to increases in gross domestic product through development expenditures.

1. Direct Effects on Foreign Exchange

The direct effect of the PL-480 program on the GOL's balance of trade has been a savings of approximately $76 million in foreign exchange between 1980 and 1986 as estimated in Table 3. Hypothetical PL-480 programs for the period 1987 through 1992 would save an additional $66 million in foreign exchange. Total foreign exchange savings are estimated at $142 million for the period 1980 through 1992 based upon differences between PL-480 imports and equivalent commercial imports. Estimates assume that commercial importers pay the same amount for rice, freight, and insurance as the GOL does under the PL-480 program. If commercial importers pay less, e.g., lower cost rice, then the estimate of foreign exchange savings is biased upwards. These estimates are also contingent upon other assumptions listed in Table 3. Program amounts for 1987 through 1992 are based upon gaps in rice supply discussed later in this report, Section V, A.

2. Effects on Gross Domestic Product

PL-480 impacts on Liberia's gross domestic product depend upon usage of PL-480 sale proceeds. All loan funds are currently used for development purposes. Impacts on gross domestic product should increase as larger portions of the development budget are spent for Liberian labor, goods, and services versus importation of same. Such a policy could reap development investments, greater capacities for exports, increased consumer spending, and promotion of agricultural productivity which would reduce reliance on agricultural imports. Growth in gross domestic product coupled with appropriate fiscal policies regarding taxation and government expenditures may yield government budget surpluses.

The USAID/Liberia Mission has developed an econometric simulation model based upon a Keynesian aggregate demand framework (USAID, Annex A). In this model, the estimated Keynesian multiplier for autonomous spending, e.g. PL-480 loan funds with maximum domestic infusion, is 1.18 for changes in flows of funds (USAID, Annex A, p. 17). According to this model, increasing PL-480 levels from $11 million in 1986 to $19 million in 1992 would increase annual monetary gross domestic product by about $3.26 million above and beyond the principal loan amounts. This multiplier increase plus the suggested funding levels from 1987 through 1992 will cumulatively contribute about $112.29 million to GDP as opposed to zero PL-480 program levels.

TABLE 5

ESTIMATED DIRECT FOREIGN TRADE IMPACTS OF PL-480 PROGRAM
FOR LIBERIA ($1,000,000)

Item	1980	1981	1982	1983	1984	1985
PL-480 Imports						
Current Account						
Merchandise Trade	-6.00	-15.00	-15.00	-15.00	-15.00	-6.00
Freight & Insurance	-.66	-2.21	-3.17	-3.32	-3.32	-1.33
Interest Payments		-.10	-.40	-.70	-1.00	-1.35
Capital Account						
Long Term Loans	+6.00	+15.00	+15.00	+15.00	+15.00	+6.00
Principal Repayments						-.19
Eff. Reserve Assets	+.66	+2.31	+3.57	+4.02	+4.32	+2.37
Commercial Imports						
Current Account						
Merchandise Trade	-6.00	-15.00	-15.00	-15.00	-15.00	-6.00
Freight & Insurance	-.66	-2.21	-3.17	-3.32	-3.32	-1.33
Eff. Reserve Assets	+5.96	+17.21	+18.17	+18.32	+18.32	+7.33
Cumulative Net Postponement Eff. Reserve Assets	+5.00	+19.90	+54.50	+48.80	+62.80	+67.26

Notes: Freight & insurance kept constant for all years at $73.70 per metric ton, the 1986 average. Records for earlier years not available.
F.O.B. Gulf price kept constant at $185.12 per metric ton, the 1986 average, for years 1987 through 1992.
Commercial imports assumed to have same freight and insurance as PL-480 imports.
Commercial imports assumed to cost the same as PL-480 imports of equivalent amounts.
Assumes commercial imports not financed by long term loans or short term private loans.
GOL is in arrears regarding repayment of PL-480 loans.
Loan repayment terms furnished by USAID/Liberia sources.

TABLE 3
(Continued)

1986	1987	1988	1989	1990	1991	1992
-11.00	-14.00	-15.00	-16.00	-16.00	-17.00	-18.00
-4.21	-5.54	-5.94	-6.34	-6.34	-6.73	-7.13
-1.61	-1.98	-2.35	-2.75	-2.99	-3.24	-3.50
+11.00	+14.00	+15.00	+16.00	+16.00	17.00	+18.00
-.75	-1.03	-1.90	-2.46	-2.46	-2.46	-2.46
+6.53	+10.19	+11.55	+11.79	+12.43		+13.09
-11.00	-14.00	-15.00	-16.00	-16.00	-17.00	-18.00
	-5.54	-5.94	-6.34	-6.34	-6.73	-7.13
+15.21	+19.54	+20.94	+22.34	+22.34	+23.73	+25.13
+75.99	+86.50	+97.35	+108.14	+118.69	+129.99	+142.03

C. Local production - Incentives/disincentives

An issue in determining food aid impacts is whether concessional imports of PL 480 Title I food have disincentive effects on local production. Availability of low cost imported food can drive down prices that local farmers receive thus discouraging any efforts to increase production. However, imports can have opposite effects, that is, it can make possible for governments to support availability of food and stable retail prices while providing incentive prices to producers.

1. Support of GOL Price Policies
The PL-480 Title I program in Liberia has been managed to support GOL policy to achieve both the availability of stable supply of rice to consumers and in providing incentive prices to producers of rice. The GOL maintains producer prices well above world prices and thus effectively insulates the possible negative impacts of PL-480 imports as a factor in disincentives. The current official price is now 15 cents per pound of paddy which equivalent to a milled price of 25 cents per pound. At current low world rice prices, the CIF price plus landing costs amount to approximately one half of the established retail price for import rice. If PL-480 rice were sold at imported rice costs rather than the administered price, virtually no domestic rice would be marketed in Monrovia.

2. Constraints faced by local producers reduce response to established prices.

One of the objectives of PL-480 Title I program is to stimulate agricultural development. One of the instruments of achieving development is an agriculture policy that provides price incentives to food producers so that agriculture through its contributions to increased productivity can contribute to general economic development. The GOL has established producer incentive albeit at high social costs. (Tweeten, Proceedings P.34, ff).

This emphasis on food policy is consistent with prevailing views that producers price incentives are required as an initial condition for increased output. The disappointment with the response by producers to attractive prices has resulted in a general reassessment of the reasons for a highly inelastic supply response. Response by producers even to prices well above international levels is inhibited by the deficiencies in infrastructure, including especially input, marketing and adaptive research systems. These constraints are reviewed in Section VII.

As Aboyade pointed out, agricultural price interventions alone will be insufficient and that complementary non-price interventions are required to achieve improved producer response. Further, as infrastructure deficiencies are corrected supply response elasticities will become larger and producers would be expected to respond to lower official prices than that which prevail in Liberia at the present time. (IFPRI, Aboyade p.6ff).

The prospect of overcoming these infrastructure deficiencies must be realistic, and take into account the relatively long time required to establish institutions, that will enable producers to respond to prices. Because of the time required, the greatly expanded level of PL-480 imports and commercial imports projected for the next decade will have virtually no disincentive impact on domestic production. There is some evidence that urban consumers have developed a taste preference for imported (parboiled rice) over country rice. Since there is effective insulation between producer level and urban level prices, even this possible negative impact of imported rice is muted for the near term.

3. Support for agricultural development from Counterpart funds.

The impact of this support is directed toward improving the general infrastructure of the traditional farmer. Improvement of infrastructure strengthens the non-price incentive structure and thus ultimately will reduce over the longer run, the level of producer prices required to elicit increased domestic output. Again the impact of the support to the GOL development budget is positive, and in the longer run will allow the lowering of the price incentive level to near the international level. Thus, investments in development of this sector will lead to higher national output and reduced costs of the GOL price support system.

3. Achievement of Price Stabilization

The GOL's rice price stabilization policy has a dual focus -- rice consumers and rice producers. The consumer rice policy is intended to insure the availability of rice to the general population at reasonably stable prices (Rogers, Proceedings, 1985, p. 49). The producer rice policy of the GOL is to promote increased substitution of "country" rice for imports and to facilitate income distribution to rice producers by subsidized paddy prices. The LPMC announced official price for the marketing year provides for stability in producer rice prices. The producer price policy was discussed above.

The consumer rice policy in Liberia attempts to maintain a stable domestic retail price which is supposed to be insulated from the level of the world rice price. Current retail prices of imported rice and "country" rice are 22 cents and 22 cents per pound, respectively. The imported rice price structure is as follows:

LPMC's Price to wholesalers... $21.30/100 lbs.
Wholesaler Price..... $22.30/100 lbs.
Retail Price..... $23.00/100 lbs.

Rice imports, commercial and PL-480, have a price stabilization function through a strategy of supply management. Basically, the mechanism used is a monitoring system that "triggers" control measures based on the available rice stocks and production estimates. For example, if supplies drop below a certain level to be maintained, imports are ordered. Thus, price stabilization occurs as rice stocks are maintained at certain levels. The rice committee is the monitoring management unit.

Substantial price stabilization has been achieved by the GOL although at costs higher than would be expected. Deficiencies in storage capabilities and in timing of imports have resulted in high costs and waste.

Tweeten and Rogers proposed a more sophisticated approach intended to reduce costs of stabilization. In addition, a stabilization fund and a physical stockpile would be established to reduce risks during periods of short world rice supplies and higher import prices. A variable levy would be imposed to support the stabilization fund. Stricter enforcement of licensing regulation of commercial imports would be expected to achieve a smoother inflow of imports. It is possible that the cost of stabilization could be reduced through the implementation of these proposals. Critical however, for the success of this scheme is a much more comprehensive data base including monetary, commodity price and production trends on a world wide basis. Management and decision requirements would be much higher than entailed in the current procedure for stabilization . (Tweeten, Proceedings p. 33 f)

.. Designated PL-480 Agent

According to the FY 80 and also previous years' Memorandum of Understanding, GOL has designated LPMC as "Government's agent for importing PL-480 rice".

LPMC's major business operations are the marketing of coffee and cocoa, the purchase and milling of domestic rice with support from the rice stabilization fund, and the importation of PL-480 rice. With assistance from the Danish Government, LPMC has recently completed construction of three large rice mills and storage warehouses in Lofa, Bong and Nimba Counties. Even though LPMC has purchased only a relatively small portion of domestic rice production in years past, LPMC has agreed to purchase 30 million pounds of domestic rice from the 1980 harvest as part of the FY 80 self-help measures. With support from the rice stabilization fund and GOL development budget, LPMC is planning to pay an extra 11 cents per pound of paddy delivered to its three mills or five planned substations. Payment in cash and purchases at eight locations could raise effective farm gate prices towards the official paddy price of 15 cents.

LPMC has encountered management and financial problems in recent years. Beginning with the FY 83 and FY 84 agreements, LPMC has failed to collect all funds from the sale of PL-480 rice. Losses were incurred both from uncollectible commercial accounts receivable and from the transfer of rice to various GOL Ministries and officials. Currently, LPMC still owes $5.8 million to ACDB A/C 413 for losses incurred during the FY 84 and FY 82 agreements. LPMC is currently in arrears regarding this debt. In 1984, the World Bank started a program of technical assistance to LPMC for management and accounting as part of its larger Lofa County ADP project. In the opinion of USAID sources, LPMC's management of the PL-480 program is improving.

V. Projected PL-480 Levels and Handling Capacity

One of the major objectives of the PL-480 program is to provide food assistance to countries unable to meet their food needs through domestic production and commercial imports. This assistance is subject to several requirements. First, PL-480 imports should not constitute a disincentive to domestic production. Secondly, the recipient country must have adequate facilities for handling PL-480 imports. Thirdly, PL-480 imports should not impact unduly upon U.S. and worldwide trade in the commodity selected for the PL-480 program.

A. Forecasted Rice Gaps

In order to forecast needs for rice imports and, in particular, PL-480 rice, three regression equations are estimated in a recursive framework. Projections of per capita real GDP and of rural and urban populations are used to forecast rice consumption, production, and commercial imports for the period 1987-1992. Previous forecasts of rice needs, for example, World Bank forecasts, have been based upon per capita consumption and production coupled with population projections. Presented also are per capita forecasts as an additional verification regarding rice needs.

1. Population and GDP Projections

Rice is the primary staple food for Liberians. Per capita consumption has remained fairly constant between 240 and 250 pounds per year (MLA, Production, 1985, p. 60). Some evidence exists that rice consumption declines as real incomes increase (Hiemstra, 1986, pp. 17-18). Table 4 lists projected urban and rural populations. Per capita GDP is assumed to decline from 1986 to 1989 and then have zero growth through 1992 as listed in the notes to Table 4.

2. Rice Forecasts - Regression Model

Given data availability and the structure of the agricultural sector, several regression models have been investigated. Those selected for forecasting are the following: Domestic consumption is a function of current year real per capita GDP, urban population, and rural population. Domestic rice production is a function of current year rural population. Commercial rice imports, (including concessions), is a function of current year real per capita GDP, current year PL-480 imports, and previous year domestic production.

On the basis of these projections, the gaps between domestic total rice production and rice consumption will widen between 1987 and 1992 as detailed in Table 5. The need for imports increases from 112.8 MT in 1987 to 150.5 MT in 1992. It is expected that commercial importers will supply part of these needs. However, even after anticipated commercial imports, there will remain a gap of 73.5 MT in 1987, increasing to 94.9 MT in 1992. This gap is subject to forecasted domestic production levels and to assumptions regarding economic growth. It should be noted that commercial import levels are based upon zero PL-480 imports in the forecast models. The gap remaining requires PL-480 imports or increased domestic output from higher yields or more acreage planted.

These forecasts assume that no advances will be made in yields of domestic production, that average farm sizes will remain constant, and that consumers' food preferences are stable. Full model explanation is presented in Annex 4. If U.S. prices remain at $185 per metric ton, then these gaps remaining after commercial imports translate into the hypothetical program levels listed in Table 3.

TABLE 4

LIBERIA: PROJECTED POPULATIONS AND PER CAPITA REAL GROSS DOMESTIC PRODUCT

Year	Population (1000) Urban	Rural	Per Capita Real Gross Domestic Product (dollars)
1986	915.2	1299.5	199
1987	961.4	1320.5	187
1988	1010.0	1342.0	181
1989	1061.0	1363.7	181
1990	1114.5	1385.5	181
1991	1170.5	1408.2	181
1992	1230.0	1431.1	181

Urban Population Growth = 5.05% from FAO Atlas

Rural Population Growth = 1.62% from FAO Atlas

Per Capita Real GDP (1971 basis) assumed to decline 10%, 6% and 3% in 1986, 1987, 1988, respectively; 0% growth in 1989 through 1992. This assumption based on USAID estimates.

TABLE 5

LIBERIA: PROJECTED RICE CONSUMPTION, PRODUCTION, AND IMPORT NEEDS
1000 MT, 1987-1992, REGRESSION ANALYSIS a/

Year	Rice Consumption	Domestic Rice Production b/	Rice Import Gap	Potential Commercial Imports c/	Gap After Commercial Imports d/
1987	263.7	150.9	112.8	39.3	73.5
1988	274.2	154.0	120.2	37.8	82.4
1989	284.5	157.1	127.2	41.8	85.4
1990	294.6	160.5	134.5	46.1	88.4
1991	305.8	163.5	142.3	50.7	91.6
1992	317.3	166.8	150.5	55.6	94.9

a/ Based on regression models detailed in annex

b/ Prior year milled equivalent

c/ PL-480 assumed to be zero

d/ If this gap is covered by PL-480 imports and if present price and cost relationships prevail then future counterpart funds will be approximately:

1987	$25,000,000
1988	$27,000,000
1989	$29,000,000
1990	$29,000,000
1991	$31,000,000
1992	$33,000,000

3. Rice Forecasts - Per Capita Basis

Total needs for rice imports (commercial, concessional, and PL-480) are also projected on the basis of overall per capita consumption and per capita production as detailed in Table 5. These per capita forecasts for imports are slightly lower than the regression forecasts. Import differences arise mainly from differences in total rice consumption estimates. The per capita method is based upon total population projections whereas the regression method uses projections for both urban and rural populations and for per capita gross domestic product. Urban population is projected to grow at 5.05 percent and rural population at 1.62 percent per year (FAO, Atlas, 1986).

4. Caveat - Commercial Importers

The regression models, while accounting for overall economic growth, fail to take into account the recent de facto depreciation of Liberian dollars. If the Liberian local currency depreciates even more, commercial importers will encounter problems. At some point, the conversion of Liberian local currency earned from rice sales into foreign currency for rice purchases could eliminate profit margins unless retail prices are raised substantially. If a commercial importer pays $12 in foreign currency for a 100 lb. bag of rice, its freight, and insurance and sells the same for $22 in local currency, gross margin is $10 in local currency. Assuming $4 in local costs, there remains $6 profit in local currency. At an actual exchange rate of 1.5:1, the local profit of $6 exchanges for $4 in foreign currency and the local recovery of $12 for rice costs exchanges for $8 in foreign currency. In effect, the importer has recovered $12 on a $12 investment of his own foreign exchange. Confronting diminishing or non-existent profit margins, importers may cease importing rice on their own accounts. The alternatives are increasing PL-480 levels or substantially increasing domestic retail prices for rice.

TABLE 6

LIBERIA: PROJECTED RICE CONSUMPTION AND PRODUCTION,
1000 MT, 1987-1992, PER CAPITA BASIS

Year	Total Population (1,000)	Rice Consumption a/	Rural Population (1,000)	Domestic Rice Production b/	Rice Import Gap
1987	2290.2	260.2	1320.5	151.8	108.4
1988	2363.5	268.6	1342.0	154.3	114.3
1989	2439.5	277.2	1363.7	156.8	120.4
1990	2518.0	286.1	1385.6	159.3	126.8
1991	2598.8	295.3	1403.2	161.9	133.4
1992	2682.2	304.8	1431.1	164.5	140.3

a/ Based on MOA per capita consumption of 250 lbs. for 1985

b/ Based on MOA estimate of 147,000 MT in 1985 and estimated rural population of 1,278,000 in 1985. Assumes agricultural population remains a constant proportion of total rural population.

2. U.S. Country Allocations and UMRs

Sections of the PL-480 Act require that Title I sales not displace U.S. and other foreign commercial exports, nor greatly disrupt world commodity prices and commercial trade patterns. To fulfill these provisions, "usual marketing requirements", UMRs, are established which represent the average annual volume of commercial import purchases during the previous five years. These UMRs are determined by the U.S. Department of Agriculture. PL-480 volumes which can be allocated to a specific recipient country equal total consumption requirements minus domestic production, stocks and the normal levels (UMRs) of commercial imports.

As noted in Table 7, UMRs for Liberia during 1980-86 do not match the average commercial imports for rice. Since the PL-480 program initiation, commercial imports have been less than the UMRs and less than the previous five year average in three of the years; namely, 1982 through 1984. Based upon projections, commercial imports may be less than the previous 5-year average in 1987 and 1988. Requests to lower the UMRs for 1987 and 1988 are probably warranted given the country's economic and foreign exchange problems. Indeed, if continued depreciation of Liberian coinage occurs, the entire rice gap may need to be satisfied by PL-480 rice.

3. Capacity for Handling Rice

1. Storage and Port Capacity for Total Imports

There currently exists about 46,000 MT of warehouse storage for rice in Monrovia's freeport and freezone areas. LPMC has 3,400 MT of its own storage in these areas. Private importers have 17,500 MT of storage. In addition, LPMC rents 25,100 MT of warehouse storage. An additional 23,000 MT of storage is available commercially and could be quickly brought into service.

TABLE 7

LIBERIA: COMMERCIAL IMPORTS AND UMRs
(1000 MT)

Year	Commercial Imports Calendar Year	U.S. FY		Average of Previous 5 Calendar Years UMR	Cumulative UMR Surplus/Deficit
Actual					
1975	31				
1976	37				
1977	53				
1978	50				
1979	54				
1980	72	64	47	47	
1981	58	60	55	47.5	
1982	46	40 a/	59	50	-10 a/
1983	29	36	57	48	-21
1984	38	42	54	48	-27
1985	51	45	49	30	-12
Estimated					
1986	46	54	45	40	+2
Projected					
1987	39		42		
1988	38		41		
1989	42		42		
1990	46		43		
1991	51		42		
1992	56		43		

Source: Moore for 1975-85
USAID for 1986-92

a/ These figures were reported in cable 7215 dated June 3, 1986

The GOL Rice Committee ideally tries to maintain at least 7,500 MT of rice in storage at Monrovia. Rice would have to turnover in storage only one time in 1987 to accommodate total imports and desired stocks. Turnover would increase to 1.5 times in 1992. For the period 1987-1992, there will be no shortage of adequate rice storage facilities in Monrovia.

It takes about 15 days to unload 10,000 MT during the dry season and about 15 days to unload 6,000 MT during the extremely wet season of July through September. This amounts to a weighted average of 188 days unloading rice in 1987, rising to 245 days unloading in 1992. With 4 berths and everyday operation, there are 1,460 unloading days available in the Freeport. Unloading rice will require 12 to 17 percent of the port's capacity. With current decline in foreign trade, sufficient port capacity is likely available.

c. Capacity of dealers for PL-480 rice

The control of commercial rice imports through licenses, price policy, permits to import, and other regulations is vested in the GOL Rice Committee. The Rice Committee invites bids from dealers, commercial importers, whenever Monrovia stocks fall below 7,500 MT. Imports are coordinated with PL-480 arrivals.

Regulations also affect the dealers' purchases of PL-480 rice. Currently, there are 8 dealers who meet all but one of the Committee's guidelines for PL-480 rice purchases. The guideline usually not met requires that dealers deposit cash or secure bank guarantees before accepting delivery of PL-480 rice from LPMC.

VI. Agricultural Development Overview and Strategy for Use of Counterpart Funds

A. Situation in Liberia

Liberia, even though extremely weak in implementation capability, has enunciated general goals which stress food security, employment generation and improved per capita income. Since by far the largest segment of the population in Liberia is engaged in agriculture, the enhancement of food security and increased rural incomes mandates substantial increases in agricultural productivity in the rural sector.

The rural population of Liberia represents 60 percent of the total population. The total agriculture sector accounts for approximately 30 percent of the GDP and employs over 70 percent of the working population. Smallholders predominate in the production of the traditional food crops: rice, cassava and a number of fruit and vegetable crops. Commercial production of food crops is limited. The marketing of cash crops is largely in the hands of the concessions and public sector corporations. Traditional farmers, however, produce significant amounts of coffee, cocoa and sugarcane which provide them with opportunities to enter the market economy.

It is estimated that there are approximately 9,000 Liberian-owned commercial farms, most of them in rubber production. This group of commercial farms includes producers of rubber, oil palm, coffee, cocoa, rice, poultry and eggs and vegetables. Since the coup, many of these farms and production facilities have not been attended to and in many instances remain idle.

The traditional subsistence sector is estimated to be roughly 176,000 farms, predominantly in rice, shifting slash and burn systems with extremely limited access to infrastructure and institutional services. A recent MOA survey reported that there were 114,000 agricultural households in Bassa, Bong, Lofa and Nimba counties, of which 101,000 were rice producing households, reflecting the high degree of subsistence mode of production and consumption in these major rice producing counties. (MOA, Prod. Est., p 11, 1985)

The traditional sector rests on a fragile natural resources and ecological base composed of soils of inherently low fertility. The soils have low capacity for easy and quick amelioration for enhanced food production except through the use of cultural practices and modern inputs. This is a fundamental and overriding constraint affecting the potential impact of all the possible interventions into the system.

The traditional system has been modified over the last several generations. The traditional system has been modified through off-farm labor employment in the rubber, iron ore and timber concessions, in the commercial activities of the urban centers, and opportunities for the smallholders to engage in cash crop production, especially in rubber, coffee and cocoa. The system is in evolutionary change. The basic question for development, and enhanced food production, can this system be modified more rapidly. The development imperatives both by public and private initiative to modernize and move to a market

driven system obviously have to deal with the social frictions that must be overcome for change. The unemployed rural worker in the city and the frustrated bureaucrat still speak of their option "to go the farm" for subsistence and security.

Crop yields of the smallholder are extremely low; consequently, their contribution to the marketable surplus of rice is minor, probably less than 20 percent. Low productivity in this sector means that per capita incomes are among the lowest in the country. Given the rapid urban population growth rate in Liberia, urban centers are largely dependent on imported sources of food supplies, especially rice. Recent rapid population growth rates, among the highest in Africa, have also rendered the traditional slash and burn system incapable of responding to expanding demand. This system, at one time, with relatively stable population was in equilibrium with the resources available, and was quite efficient.

Population pressures placed on the system has shortened the fallow period, resulting in declining fertility and output per unit of input. Rapid urbanization coming with rapid population growth has spatially uncoupled production and consumption once in intimate relationship within the family, clan and village.

Rapid urbanization brought into the forefront required changes in the economic/social organization and the necessity of developing transport, trade and markets to handle food commodities and production inputs plus all the myriad features required to move food production efficiently to rapidly growing consumption centers.

Likewise, the pressure on the resources base obviously has rendered the centuries old production system incapable of meeting increased food demands, given the constraints of local traditions, and language diversity. The signals of the emerging modern price and market systems are substantially muted by these constraints.

. Potentials for increased productivity

Much of the potential for increased rice output in Liberia depends on estimates of the impact of future yield increasing technology and the speed with which it is applied. Determinants to achieve increased productivity are many. Especially important for Liberia is the availability of improved seed varieties for both the upland and swamp land. Full exploitation of seed

technology alone requires a level of physical infrastucture (roads, storage, etc.) not now available in most parts of the rice growing region. The efforts of the Smallholders Rice Seed Program now established, offers the hope that a simple technology such as improved seed can penetrate far enough into rice growing areas, despite the serious obstacles of poor roads and communication. Improved seeds can result in significant early increases in output.

The estimates by the Presidential Mission in 1982 were based on a much larger package of inputs, including fertilizer and improved cultural practices, and assumptions on reasonably improved capability to move inputs to farmers. The estimates of increased paddy production in presently cultivated areas of upland rice of 95,000 MT and of swamp and irrigated rice of 300,000 MT are much too optimistic for the near term. This increased output would more than equal current imports (USAID, Mission, p. 11 f).

Achieving these levels of outputs will require expansion of the cultivated area, i.e., shortened fallow, and would be dependent on technologies to cope with declining fertility and erosion problems. These factors alone make achievements unlikely in the near term as such technology is not now fully available. Substantial investment in infrastructure would be necessary to handle both the needed inputs and outputs.

However, full utilization of improved rice seeds now available and forthcoming within several years could increase paddy production from the traditional sector by an additional 45,000 MT from the upland, and by 5,000 MT from swamp and irrigated lands. By the mid 1990's and assuming full utilization of higher technology packages total additional paddy output would approach that indicated by the Mission estimates. But achieving these increases in output would require a substantial improvement in the infrastructure. Up to now, these constraints have almost nullified the expected response of producers to price incentives.

Potential increases in output of cassava are possible in view of the improved varieties now becoming available from IITA. There is a scope also for expansion in the fruit and vegetable crops. An unexploited potential for increased output in poultry and meat animals is possible if much of the feed requirement could be obtained from local sources rather than from imports. A substantial portion of poultry and animal production facilities are idle for various reasons, most important of these, of course, is limited foreign exchange availability for feed.

.. Constraints in Achieving Higher Productivity in Food Production

Enumerating the constraints to modernization or making it possible for easier movement of external inputs into traditional food production could be an endless task. The constraints, and likewise possible interventions, overlap and interact with each other.

The principal and fundamental set of constraints for increased food output include:

.. the fragile nature and low productivity of the soils;

.. the scattered and relatively low spatial density of production units, weakly linked together in scattered villages and traditional market centers;

. the cultural and language diversity;

.. the long established economic and social system based on self-sufficiency, security and survival of the family, clan and tribe;

. Strategy Elements for Interventions Addressing Key Constraints

Specific constraints for potential enhancement in productivity are numerous, some more intractable than others. For this exercise, a list of principal interventions typically used will suffice to suggest the type and limited set of constraints being addressed.

. Strategy elements leading to the institutionalization of the following:

a. Enhancement of technology generation and diffusion, capable of generating a continual flow of adapted technologies;

b. Improvement of the physical infrastructure, capable of efficient movement of inputs and outputs;

c. Improvement in price/market systems that efficiently transmit supply and demand signals;

d. Improved intermediary institutions for savings mobilization and credit delivery, especially for investment in agricultural technology, in production and rural industrialization;

e. Improved educational and health care delivery to enhance entry of the population into modernized systems (labor productivity and technical management capabilities) which together lead to improved general welfare as embodied in notion of the physical quality of life index (PQLI).

Together these strategy elements are components of a growth model in earlier stages of development. The development of local institutions to overcome constraints are required to begin and to maintain the process of growth in productivity and output. Implementing the above strategy elements to achieve institutionalization of these interventions requires much time. This process depends on clientele and target group interest, understanding and continued support. Clientele support and interest, and hence institutionalization, depend on the obvious short term and high visibility of the benefits derived. For example, the institutionalization of the system of road building or maintenance, whether through private or public, local or national efforts, may be easier and require a shorter timeframe to establish than would likely be the case for generating high clientele support for the establishment and enhancement of the capability for technology generation and diffusion.

E. Requirement of Consistent National Support

Consistency of official national support is more important than level of support to achieve successful institutionalization of development interventions. The best designed project intervention will fail in on and off financial support is the mode. Further, ideological and political support underpinning the thrust of the intervention must be evident in view of the complexity and interrelated factors constraining its success.

However, the level of national support must be sufficient in order to achieve a "critical mass" of intervention elements to overcome constraints and to firmly establish indigenous based institutions. Intervention investments are high and pay-off streams extend far into the future.

F. Public Sector Management

A fundamental constraint for an effective development process in Liberia is the inability of the GOL to implement a publicly accepted set of goals and to pursue and support internally consistent strategies. An essential need for improved selection of efficient implementation strategies is a comprehensive national data base that is maintained on a continuing basis. Lack of an adequate data base is a common deficiency in many third world nations.

In this connection, a World bank report, Public Sector Management in Botswana: Lessons in Pragmatism, is worthy of study by governments and development professionals. According to the author of this report, public sector management in Botswana "is considered one of the most successful in Africa, if success is measured by the capacity of the system to formulate and implement effectively strategies and programs for economic and social development". (World Bank, 2) This study of public management in the government and parastatals examined planning and budgeting systems and utilization of technical assistance for strengthening the management of the public sector. Botswana is not a planned economy but it produces a National Development Plan. This plan is regularly revised and amended to harmonize the level of resources available and their allocation between consumption and investment. This document obviously leans on a substantial national data base which has led to improved analytical capacity.

It is difficult to compare Botswana with Liberia, each having a different cultural, economic and political history. However, among the commonalities they share is that annual population growth rates exceed 3 percent; the natural resource base for food production is fragile; both depend on imports to meet food requirements; and yields of principal food crops are low in both countries compared to that potentially achievable.
Like Liberia, "the capital intensive nature of mineral production and of the modern sector generally has not provided as much new employment opportunities as hoped for" (World Bank, 15). In contrast to Liberia, Botswana appears to have made judicious and limited use of government owned entities and parastatals leaving to the private sector a larger scope for entering the development process of the nation.

VII. Institutionalization and Selected Strategy Elements as a Basis for Utilization of PL-480 Title I Resources.

A. Introduction

Neither time nor resources are available to engage in intensive review and assessment of the progress of Liberian institutionalization of the development activities in the various projects now in place. Various assessment type documents, i.e., mid-term internal and external reviews, AID Project Impact Evaluation Reports, etc., currently available served to provide substantial background. These alone cannot be assumed sufficient to establish whether or not sufficient degree of sustainable indigenous institutionalization has taken place. Furthermore, a measurement of institutionalization, nearly always subjective, requires considerably more study and involves considerable judgment by both donors and Liberians. Establishment of priorities among

projects for funding requires substantial data such as prior commitments and investments, availability of project staff, funds, and degree of achievement of project objectives.
The discussion which follows is organized on the basis of the set constraints being addressed as embodied in five strategy elements selected and outlined briefly in Section VI.

B. Enhancement of Technology Generation and Diffusion

Liberia has had less than successful experience in building national capabilities in technology adaptation and diffusion. It shares this disappointment with all the African nations and the donor community generally. Efforts to enhance indigenous capability in generating adapted technology and its utilization has been the hallmark of USAID's efforts worldwide. It is one of the four pillars of USAID Goals. The Africa bureau recently has prepared a policy paper (date unknown) on the critical need to strengthen indigenous research capability. It recognizes that there are only a few national institutions (perhaps 5 or 6) in Africa that have some viability. This document proposed a regionalization of this critical need, through a cluster arrangement of weak institutions linked and associated with the strong ones. These clusters would be established according to the several ecological zones in Africa, each of which would have some commonality with respect to the needed research base for food production. Whether this approach is viable or not depends on strong donor coordination and support, and also whether or not it will be acceptable to some nations who aspire to having their own fully developed research capability.

Considerable donor resources have flowed to Africa (Liberia as well) to strengthen national research capability to produce yield increasing technology for the principal food crops. Results thus far have been disappointing, especially as measured in terms of per capita food output which has been declining over the past two decades. Success stories are few.

Much of the debate and judgment concerning the reasons for lack of success has been led by the donor community largely influenced by the development experiences of Asia. Technical experts in food crop production whose experience was largely Asian, including those within International Agricultural Research Centers (IARCs) thought adaptation of improved variaties from elsewhere would be relatively easy. For example, results from the improved sorghum and millet varieties developed at ICRISAT and introduced in the Sahel in the 1970s were generally disappointing and forced the project to go back to basic research approaches (Swindale, p. 77). A similar experience has been reported for rice. Trials over a

ten-year period at WARDA, involving over 2,000 imported variaties resulted in only two that yielded as well as the best local varieties. (WARDA). Imported improved varieties of other crops behaved in similar fashion. A number of observers have concluded that that stock of food crop technology available for use under African conditions is meager

Andrew Karnack, in his book Economic Development in the Tropics, points out the difficult natural constraints which have to be overcome in the development process in Africa. Limitations of the resources base, i.e., soils, climate, ecology, are fundamental. Diseases and pests affecting man and animal seriously impact on the development process. Further, he cautions against premature expectations of temperate zone and designed approaches that do not fully consider difficult and different biological reaction to scientific manipulation. Plants do not behave like they are expected to in a temperate zone experimental plot. He suggests that a considerable emphasis on basic research will be needed to overcome these natural resource constraints. Few African national institutions can engage in basic or fundamental research at this time. Eicher and others have suggested that the donors have committed too little resources for basic research in African food crops in the International Agricultural Research Centers (IARCs).
Even if adapted crop varieties and associated inputs were immediately available, the available infrastructure would not be able to support quick adoption. Extension and general infrastructure systems, always difficult to establish, encounter different problems in shifting slash and burn systems common to Liberia and much of West Africa.

The training and visit system (T and V) extension approach, developed in an Asian setting for high density irrigated production regions, with high yield potentials, has been relatively successful but costly. It is not so well adapted for use in rainfed food production systems and particularly in shifting agriculture and scattered production units. Adaptations of the T and V approach have been used in the Agricultural Development projects in Liberia. Comprehensive development projects of this type, attempting to overcome deficiencies quickly in available trained extension manpower, delivery of inputs, etc., incur large initial investments and high recurrent costs unlikely to be supported because of budgetary shortages on a sustainable basis.

Neither the complexity, nor the time and investments required, to make possible the necessary response from the food sector, to match rapidly rising population growth rates was not fully appreciated several decades ago . It has not been possible to put the necessary technologies and the infrastructure in place rapidly enough to counter declining per capita food output and rising dependence on food imports. Too much was expected on too short a timeframe.

The prospect of closing the food gap quickly, with less dependency on food imports appears bleak. Liberia, like much of Africa, is in the earlier stages of demographic transition so that total population growth will continue well into the next century. Again, Liberia like much of Africa has neglected agriculture development and those investments that were made, served primarily cash crops and the commercial sector. A focus now on smallholder needs is in the earlier stages of emphasis. Efforts to hasten it will require high development investments with the expectation that these investments will need to extend over a longer timeframe than hoped for several decades ago. The choice of investment decisions and intervention strategies that will accelerate growth in the food sector is now critical. Growth in the food sector which emphasizes development strategies for smallholders can achieve rising rural incomes and employment, reduction in rural to urban migration, and possibly rural industrialization over time.

Ruttan, widely recognized observer and scholar of agricultural development, has constructed a rationale for the role of induced innovation in the development process. He suggests that somewhere in the system there must be an indigenous capacity for technology generation and diffusion in order to raise productivity and total output. In his book, Agricultural Research Policy, he states, "the single most important variable that accounts for the differences in the productivity and output between nations is their ability to fashion and adapt technology that takes into account the human and natural resources available within the historical, cultural and political context in which they find themselves" (Ruttan, Chapter 2, exact citation not available). This statement suggests the high priority need to establish a set of institutions that are engaged in generating, adapting, and refining technological application on a continuing basis; and, as these innovations impact on the development process, to generate new technology appropriate to new and successive emerging stages of development (Ruttan).

3. Improvement of Physical Infrastructure

Agricultural development requirements for infrastructure are high, and especially so for smallholders in low density population/production systems. The need to reach farmers with inputs and information efficiently and on a timely basis is especially critical. The best yield increasing technology will not achieve expected results if

timely information and distribution of inputs is not possible. Nor will expected response by farmers be attained if effective means of moving the expected increased outputs to markets are not in place. Transport of increased outputs by headloads to distant markets certainly discourage full response to technology interventions and to whatever price incentives may be available to farmers.

The efficacy and possible scope of the research effort is clearly linked to the availability of an appropriate level of infrastructure. The speed of adoption is directly related to infrastructure capacity. The level of infrastructure development is especially critical in the delivery of a higher order of technology "packages" which include not only improved seeds but also fertilizers and improved cultural practices. A poorly developed system of roads and markets will limit the level of technology that can be introduced. Distribution of improved seeds is about all that is possible, and even this possibility is at relatively high costs.

Investments in building infrastructure are high. Furthermore, such investments will not, or should be expected to pass the standard short-run rates of return criteria. But they must be in place for effective and rapid technology introduction into food production systems.

Mellor, of the International Food Policy Research Institute (IFPRI) has compared the high cost of infrastructure and market deficiencies in Africa with those in Asia. He concluded that if marketing margins in Africa could be reduced to levels achieved in Asia, consumer prices would be reduced from 10 to 20 percent and producers prices would be increased from 30 50 percent. These data probably understate costs arising from deficiencies in infrastructure in Liberia where the majority of small holder rice farmers are in the interior, distant from major consumption centers.

Much of the infrastructure, like agricultural research, extension and training are "public goods" and require high level and consistent attention of the Government. In activities such as road building, transport, storage, warehousing, etc., decisions should emphasize the efficiency that can be achieved by making full use of private sector and local involvement. Overall responsibility and planning must be retained by the Government, but decentralized administration and local responsibility can accelerate infrastructure building. In the case of Liberia, it is probably that much could be gained by more firmly establishing institutionalized roles of counties and districts and utilization of private sector initiative where possible.

5. Improved Price/Market Systems

Imperfections in the market abound in Liberia. They are reflected in the high marketing margins that prevail between the producer and the consumer. A large part of the imperfections arise from a complex set of circumstances in which even simple market transactions take place.

The tremendous difficulties that are encountered by the government to "pull" the "marketable surplus" from smallholders is well known. Obtaining producer response from fixed buying price and fixed buying points has been less than hoped for, because of the physical environment in which the transactions take place. Government price policy signals are muted.

Again, improvement in price responses by smallholders is highly correlated with level of infrastructure that is available.

Established buying points often are too distant from farmers to allow full opportunity for their use. The bargaining position of the farmer with a single itinerant buyer involving a few headloads of rice along a roadside is extremely limited. Most likely, he/she does not know the prevailing price, nor fully understand the discounts needed to move his output from his remote location. He has few alternatives in exchanging his output for other goods and services.

The level of physical infrastructure available almost dictates the level of efficiency which can be attained in the market price system. A developed road system will encourage market relocation from traditional points, and will make possible larger markets where more effective bargaining is possible. Larger markets will make possible efficient space and time arbitrage through storage and local processing. The likely result of these developments will make price differences between Monrovia and "distant" markets more realistic.

When the physical features are more nearly adjusted to the needs of smallholders, there will be opportunity to link markets through market news information freely shared between markets and with farmers. Further, standardization of terms, quality and measurements will become important. Traditional buyers will strongly resist market information, particularly if shared with farmers. Experience has shown that even greater resistance will be encountered with the establishment of quality and measurement standards. Introducing these features in the market price system reduces the role of haggling in bargaining and increases the knowledge of farmers, resulting in improved bargaining position of farmers. Further, their ability to interpret and respond to government price policies will be enhanced.

Again, these requirements for more efficient markets are "public goods" and their provision is a proper function of government. A continuing data base capability will be needed, to establish regular market news services and data series on production, prices, trends, etc. Further, a study relating to the development of quality and measurement standards applicable to local needs and their possible linkages to international standards would enhance the functioning of the marketing system at all levels from primary to the national level.

c. Improved Intermediary Institutions

The principal intermediary institutions in agricultural development are those involved in mobilizing savings to make possible the investments required in technologies to achieve increased food output.

The experience of providing agricultural credit through various types of cooperatives and integrated rural development projects for investment in technologies has not been universally satisfactory. Credit is too often seen solely as an input and providing it causes more rapid adoption of technology. The difficulties in establishing special credit institutions for development are well known, especially those intended to serve smallholders. Repayment capacity and debt carrying capacity become critical factors in providing loans to farmers and especially to smallholders. Both repayment and debt capacity are highly dependent on efficacy of the technological packages available, i.e., will they indeed provide the expected increases in output and income for repayment and increase the ability to carry debt for longer term investments.

The strategies for increasing productivity of smallholders in the early stages of development will likely favor labor-using and capital-saving technologies - an approach that is economical, and one which will prevail for several decades ahead, given the overall situation of rapid rural population growth rates. If technologies can generate increased outputs and income, the beneficial spin-offs are attractive. They include increased employment in rural areas, and reduction of rural to urban migration.

Initial capital needs of smallholder upland farmers are relatively small. However, their needs for capital increase as technologies become more sophisticated and less divisible. At some point, this output increasing technology will make possible greater repayment and debt carrying capacity. Many observers argue that at early stages of development sufficient indigenous capital is available for improved seed technology which can generate marketable surplus. Marketable surpluses along with cash crop enterprises usually found in upland areas in much of Africa will generate substantial ability of local farmers to purchase the "next generation" of technologies, fertilizer, improved tools, etc. Understanding indigenous savings mobilization and use of savings for development investment may be a productive exercise, particularly as this applies to earlier stages of development. At later stages of development, more formal arrangements of savings mobilization and lending for investments in agriculture become more practicable when the standard criteria apply in lending and in collateral requirements.

Adams, among others, has been critical of approaches used by governments and donors in the establishment of agricultural development banks, credit cooperatives and special credit features of integrated agricultural development projects. (Adams et al)

The reforms and approaches Adams advocates are difficult to achieve, would take time, and above all require an understanding of indigenous systems. The possibility, of course, exists that rural financial markets of the type advocated by Adams can be developed. Meanwhile, the investment needs of accelerating agricultural productivity and output will increase rapidly. Since many of the standard government lending institutions are already in place, efforts to improve their management, credit capability and supervision of loan portfolios will have high pay-off.

F. Improved Educational and Health Delivery Systems

The benefits of education are widespread in a society. It obviously has high utility to assist people to increase their productivity and thus their potential contribution to national output. In addition to economic benefits, there are those derived from education in understanding nutrition, safe water supplies and for general health. These benefits also impact on the rate at which development can proceed. The level of literacy, for example, is critical with respect to communications needs in raising skills and knowledge to increase agricultural productivity.

Similarly, the benefits of primary health care lead to increased capability of people to contribute to development. Basic education that provides a level of skills and knowledge and general utility in general welfare is a highly prized consumption good in all societies.

The agricultural development process is negatively affected if levels of skills are insufficient for understanding the simplest of technologies. For example, proper seeding and fertilizer application rates per unit of area are difficult if measurements indicated are not understood by the farmer. The content of primary educational support must be relevant to the needs of the smallholder farmer and his family.

Liberia, while making progress in achieving a respectable level of literacy in the 1960s and 1970s, has experienced a rather rapid decline in literacy in recent years. Available published data suggest that the overall literacy rate in Liberia in the late 1970s was approximately 25 percent and that the rural literacy was about 12 percent. The physical quality of life index (PQLI) which in 1978 was 77 has fallen considerably.

Efforts to change the direction of these indications of literacy and the PQLI will be a challenge for the Government of Liberia and donors alike. A sound policy targeted on these disquieting trends, however, will not achieve improvement when general implementation capacity has been seriously weakened by the financial crises of the last decade.

Implementation Thrust

The brief outline of strategic elements presented above should not be considered comprehensive in detail, nor in covering the whole spectrum of possible strategies. They comprise the initial intervention components for national economic growth. They will change in relative emphasis and over time as bottlenecks occur. All are interconnected and support the general thrust. They are intended to support the concentration of resources leading to the development of smallholder productivity, principally in rice, so that progressive modernization and growth over time can be stimulated. As this process proceeds, new strategies will need to be devised. For example, issues dealing with tenure security will arise as input investments by farmers increase through time.

Sixty percent of the population is in this sector. Even small increments in productivity and output of the 176,000 smallholder farms together can add up to significant contribution to the national economy.

In view of rapid population growth, and consequently a growing labor force, employment generation through productivity increases in food production will reduce unemployment in the economy generally. Job opportunities outside of agriculture will be limited and prospects are dim that the urban sector can, at any time soon, absorb but a small portion of the continuing stream of new job seekers.

The commercial farmers already have reasonably good access to infrastructure, i.e., technology, credit and roads. Most are producing export crops and only minimally rice. Many have a reasonable level of tenure security through various leasing and other procedures, others hold land on freehold basis. All can be expected to make investments in productivity increases provided market incentives indicate profitable investments. The level of use of improved technologies, especially fertilizer, machinery and equipment, depend on foreign exchange availability. They are generally linked to and supported by the governmental parastatal structure. As a generalization, this group has obtained a large share of available governmental agricultural sector investments and support. Their contribution as a group to employment generation with respect to national needs for job creation is relatively small.

VIII .Considerations in Project Support through PL-480 Title I Resources

A. A Set of Perspectives

The debt crisis in Liberia, like in many countries, continues. The hope expressed at the beginning of this decade, by many observers was that within 4 - 5 years the liquidity crisis would abate once real interest rates fell and the world economy revived. The debt crisis appears to be chronic. Debt burdens are higher and recovery in industrial nations is at best "sputtering". Recovery in industrial nations was expected to lead to improved markets for primary and cash crop exports. Now, projections for price recovery for these exports are dim with a few exceptions.

Liberia must make clear and must be willing to indicate its strong commitment to development focus that centers on needs of the people and opportunities for increased productivity for the largest segment of the population. Even though weak in implementation capability and hampered by severe financial constraints, Liberia must express intent to proceed even under difficult circumstances.

At this particular time, when Liberia is virtually on its knees, is precisely the time for donors to "go the extra mile". Through every means possible, donors need to maintain whatever momentum for targeted development that is possible and to support levels of general well-being.

This may also be a time that Liberians will be able to intensify their own effort in critical evaluation and assessment of priorities. Low priority, poorly focused projects and those that are less relevant to development must be abandoned.

A brief discussion of selected projects of the USAID/Liberia portfolio follows:

3. Agriculture and Rural Development

1. Rural Development Training II

This project supports the Rural Development Training Institute (RDI), a two-year vocational agricultural program at Cuttington College. The MOA has designated the RDI as its principal extension training center. The project grant supports faculty development, facilities construction and improvement in managerial functions. The RDI is expected to provide the nation extension personnel with applied skills required to maximize assistance to farmers. USAID has supported RDI for some years. Obviously, RDI is a critical component in providing trained manpower needed in agriculture.

2. Agricultural Research and extension II

The current project is a 9-year effort to strengthen the capacity of the Central Agricultural Research Institute (CARI). The project objectives include strengthening research capability, establishing a socio-economic division, improving administration, conducting off-site trials and establishing liaison with extension agencies.

CARI, established in 1950, has a long history of substantial donor support, beginning well before similar efforts were undertaken on food crop research in most African nations. During the 1950s and 1960s, most other African nations were beginning to shift their research from the earlier colonial emphasis on cash crops to local food crops emphasis. Liberia started with cash crops emphasis and neglected staple food crops. Generally agreed, is that the efforts of the seventeen early advisors accomplished an impressive list of experimental results on a number of crops with emphasis on cash/export, tree crops. Staple food crops and, in particular, rice were neglected. Like other West African national research institutions, CARI efforts to improve on the local varieties of rice were considered to be very disappointing. CARI faced the same set of difficulties as other research institutions in West Africa, including WARDA. Rice is a key staple in the national diet. Improved rice varieties are the most important single input which can feasibly be introduced into traditional rice production systems, at this time. The adaptation of Asian improved rice varieties to West African conditions was much more difficult than many understood.

CARI, like many similar institutions, became the hub of a network of outlying research stations long since abandoned. Too much was undertaken and much of it prematurely in relation to priority national needs for increasing food output. Linkages to extension and to training institutions have not materialized.

CARI has also been plagued by uneven funding. Deficiencies in management capability and lack of support from the National Agricultural Council and the Technical Research Committee are well known and documented.. Both Government and donor interventions have pushed the program prematurely into establishment of specialized disciplinary areas that have not been clearly focused on food crop research needs.

Despite these historical problems CARI has made substantial progress. It must continue its critical and central role in technology generation. High priority must be given to continued and consistent financial support.

3. Nimba County Rural Technology

This effort, supported since 1976, is attempting to create non-mining employment opportunities, anticipating the probability of reduced employment in the mining industry. The project supports credit and management assistance to small-scale industrial, manufacturing and construction enterprises. These efforts emphasize employment generation in rural areas, an extremely important objective in the context of rural development needs of the nation.

Some thought might be given to an effort to establish rural based industry to serve more directly the input needs of traditional farmers. Feasibility studies may be needed to determine if improved hand tools and other simple innovations or modifications of equipment can be produced in rural areas. The rapid development of small tools and rice threshers manufacturing by local artisans and blacksmiths in rural India and Thailand is well known. Local capacity for producing tools grew simultaneously with the rapid introduction of improved rice technology. Prototype models are available, especially from IRRI, for Liberia to proceed to encourage similar development of rural based industry.

4. West African Rice Development Association II

This project supports efforts to develop high yielding rice varieties together with improved production practice for WARDA's 16 member nations.

As pointed out earlier, WARDA's early contributions were considered to have been minimal, primarily because of the inability to discover rice varieties suitable for West African conditions. Once it was realized that almost none of the Asian varieties yielded better than the local varieties, WARDA's mandate was broadened in 1984 to include technology generation and increased efforts in the search for other sources of germplasm. The prospect for higher yielding rice varieties now appears much brighter after incorporating genetic material from several South American research centers.

Notwithstanding the widely held view of limited contribution by WARDA, it was able to accomplish through various training and short courses a substantial upgrading of research staff skills for member nations' research programs. WARDA has taken the lead to discover appropriate cultural practices for various environmental conditions such as, soils, climate, and for upland, swamp and other production techniques.

The weak linkage between CARI and WARDA has deprived Liberia of fully using these resources. Much could be gained if the linkages could be strengthened, especially now that the prospect of improved upland and swamp rice varieties appear much brighter.

WARDA must be considered a strong component for strengthening technology generation and diffusion. Liberia must embrace more firmly this resource for its potential contributions to accelerating rice outputs of smallholder farmers.

5. Agriculture Sector Analysis and Planning

This project, authorized in 1977, seeks to encourage the use of the sector framework in analysis, approval and implementation of development projects and policies. Establishing this capability in the MOA is highly desirable and urgently needed.

however, this level of capability requires first a considerably stronger foundation in data collection and analysis. In addition to time series data on production, commodity prices, farm/retail price spreads, special studies should be undertaken. These include studies of costs of production by food commodities, especially of those in the smallholder sector. Worthy of further effort are studies of the marketing system for major crops. Finally, weekly or monthly commodity price information should be obtained, reflecting prices at various levels of trading at the major markets. This kind of information is needed to improve the efficiency of the Liberian markets, especially the smaller markets in the rice growing areas. Market news published or transmitted by radio to farmers would enhance farmers' bargaining ability and introduce a measure of competition among buyers.

The ability observed in data management, and improved data collection capabilities was encouraging. This is reflected in the several recent publications produced. Once capabilities for data collection, data management and analysis are firmly established, then in logical sequence efforts can be undertaken to encourage capabilities necessary in sector planning and analysis.

C. Education and Human Resource Development

Two projects currently supported under this management unit are the Improved Efficiency Learning II and the Rural Information System. Both projects support critical needs in Liberia.

The former addressed the constraints imposed by limited capacity to extend educational opportunities to major segments of the population. Content for formal education in Liberia tends to be irrelevant to lifestyle and economic prospects of many of those who receive it. A literacy rate of less than 25 percent is far below the threshold level for economic take-off of the nation. The intent of this project is to extend tested programmed instructional methodology to a larger number of schools. Use of this methodology probably has not become institutionalized and its full impact depends on strong support by the GOL.

The Rural Information System project, authorized in 1980, has become operational after some considerable delay. It has the capability of transmitting a broad range of information related to development. The three stations of the system located in rural areas permit programming in major tribal dialects and capability to reach much of the population in the country. The rural information system can become a most effective extension outreach program for development information in the nation at this time. It can "leap over" the constraints posed by the limited road system. It can create awareness among farmers of the potential of simple technology and through transmitting market news information improve farmer response as well as improve his bargaining in the market place.

D. Health and Population

The several projects in this management unit contribute to fundamental long term development objectives. They are essential to improved general welfare of the nation. These projects, like all USAID efforts, encounter the same set of constraints in implementation. The prospects of institutionalization of the various strategic components are dependent on the support of GOL. Like other projects in the portfolio, these efforts face human resource constraints of poorly trained and inexperienced professionals in key "points" in the system. These projects are high priority candidates for continued support.

E. Special Projects

Several of the projects in this management unit contribute directly to improvement in the GOL capacity for implementation. Several have high requirements for training in critical specialized fields.

The project entitled Road Maintenance contributes to bringing traditional agriculture into the market economy. However, much more effort and expenditures will be required to construct even the minimal essential network required for delivery of even the simplest set of inputs. Many of the isolated "transaction points" for output must be aggregated via a road network to enable the establishment of viable local markets. Improved road networks will lead to larger market sites where competition among buyers will be increased and bargaining position of farmers enhanced. These markets can then become "basing points" for a market news information service so essential to improving efficiency of markets throughout the nation.

The serious deficiency in access to primary roads is reflected in data from a study by Schulze. He reported the percentage of land area within one mile of primary road in Bassa, Bong, Lofa and Nimba counties ranged from four to eight percent. (Schulze, Geography, p. 188). The percentage of land within one mile of primary road in several other Liberian counties is likely much less than those reported above.

An extraordinary effort by GOL will be required to overcome these constraints to developing more efficient markets. Costs will be high. Standard rates of return likely will not be positive for some time. The scope capability and contributions of all the other components of the infrastructure is dependent on the extent of the road network.

While GOL financial resources are not available for extensive efforts on road building, there must be opportunity to encourage more local responsibility and to stimulate larger private sector contributions.

F. Special Considerations Concerning the Agricultural Development Projects (ADP's)

Information on the scope and the degree of institutionalization achieved by other donor efforts was not readily available. However, since the entire GOL Development Budget is supported by PL-480 Title I resources, the viability of these projects rests, in part, on the level of these resources. Considerable donor coordination, patience and understanding will be necessary to ensure that the available donor resources together achieve maximum possible impact during this stressful period now anticipated to extend for some time in the future.

Both the Bong and Lofa County Development projects have achieved a considerable array of targeted objectives but at relatively high costs. They have demonstrated that yields of food crops can be increased. It must be recognized, however, that the MOA will not be able to assume the level of service provided to project farmers any time in the foreseeable future. Further, project farmers received a set of services not available to non-project farmers, nor was the project coverage, especially in the earlier stages, coincident with the counties. This led to duplication in the MOA support structure to farmers - those derived from the regular MOA programs, parastatal programs and project supported programs. County governments were bypassed in important aspects.

Most important from this experience is the fact that the GDL and donors involved no doubt have come to appreciate the difficulties and high costs of accelerating food output from traditional farmers. The desire for speed and concentration of effort is understandable but speed nearly always comes at higher costs. In contrast, the Nimba Country Rural Development (NCRDP) project, particularly after its revision, has emphasized the "bottom up" approach, building on local indigenous structure. It has emphasized support of simpler technology interventions at this time, given present infrastructure weakness. There is less "built in" farmer discrimination by the intent of project coverage to be the entire county. Although the project has independent administration, it appears that the project administration is tied into the county authorities and to the MOA. The NCRDP employed extension personnel at prevailing MOA salary levels in contrast to the BCADP and LCADP, which offered higher pay scales. The project costs per farm, per hectare, per unit of output are much lower than in either BCADP or LCADP.

It would appear that an opportune time exists to consider shifting to lower level of project intensity, and thus costs, of the BCADP and the LCADP. Continued donor support at current levels is unlikely. Abruptly closing these project would have very negative consequences. Shifting to a mode of "stretch out" and reducing the emphasis on full packages of technology at this stage of development appear to be an alternative. Enlarged packages obviously will be needed to counter fertility decline but great infusions are not possible now. Provision for a gradual increase in contributions from the private sector can reduce costs and drain on public sector budgets.

It should be possible now for the MOA and concerned donors to establish a joint study effort to determine feasibility of combining the best features of the three ADPs, emphasizing those intervention which were found to be most productive and which could be replicated in other counties. Also, it is important to bring costs down approaching long term local financial sustainability. Perhaps a model might be constructed which, with adaptation, could be extended to other counties. It would also be possible to rationalize extension activities to achieve more effective capability to serve farmers. One extension service for the entire nation would remove much waste, duplication and defused responsibility which now exists with at least five "extension services".

The potential gains from this exercise would be high. It is worth concentrated attention and effort.

G. Some Short Term Options to Maximize Interim Impact of Projects

Local institutional capacity is much less than desired in all projects. Several project efforts have attained a higher level than others. Trained local staff are central to building institutional viability. There is a universal need in Liberia to strengthen counterpart staff capability and to increase the number of back-up staff. There are many opportunities for use of research/study grants, training fellowships and workshops to improve local staff skills well beyond those typically supported in a project framework.

1. Grants for Research/Study

A wide range of possibilities exist. Some examples follow:

a. Grants to the various Ministries for needed studies might be explored.

b. Grants for collaboration in carefully designed research in certain food crop areas between CARI and the University of Liberia.

c. Grants for feasibility studies involving CARI, the University of Liberia and a private entity to determine the possibility of using domestically grown feed ingredients for poultry and animal feeds.

d. Grants for specific studies in health, education, on-researchable problems, which can be conducted in-country.

e. Grants for studies on the essential features of a national road network to serve the traditional sector, possibilities of alternative cost reducing technologies with emphasis on maximum use of local materials.

The purpose of these grants would be to maximize the use of local research talent in Liberia, and especially to strengthen collaboration among them.

2. Scholarships/Fellowships for formal study

Fellowships should be targeted on subject matter needs or skills in short supply in Liberia. These should be in fields that contribute directly to the development needs of the nation. To maximum extent possible, training institutions in country should be utilized. In some instances, grants in certain fields may require study in institutions in other African countries.

In general, these study grants should be limited to associate and baccalaureate levels. Critical professional skills requiring training at post-baccalaureate levels should be supported even though training must be outside of Africa.

3. Short courses/workshops

Grants can be made for judicious use of short courses and workshops to quickly upgrade professional and technical staff. Grants may be required to organize needed specialized workshops, as well as travel support for participants. A number of workshops/short courses are available in country, such as those offered by WARDA, designed to improve skills of technical level staff in agricultural research.

H. Indicated Self-help Measures

As part of each Title I agreement recipient countries are required to specify measurable economic development and self-help activity that it intends to undertake in using the counterpart funds generated. These activities are to focus on agricultural production and development generally. Explicit activities that specify goals, targets and time frames are to be incorporated in each self-help measure so that effective review and monitoring can be accomplished. In some instances, donor coordination is required in specifying some of the self-help provisions.

Throughout the discussion in this study, a number of high priority GOL development thrusts were suggested. Some of them may be adapted for incorporation in self-help measures. The detail and framework of each, obviously require joint involvements and consideration by representatives of the recipient country and the USG. Measurable components could be indicated in self-help measures for the suggested list below in support of GOL development initiatives.

1. An expanded effort to support building and maintenance of the feeder road network with emphasis on use of local contractors, local materials, and local employment

2. An expanded effort to support grants for research, scholarships, special studies and short courses as outlined above in section G. emphasis should be on use of local talent and resources to maximum extent possible.

3. Support for specific efforts in each of the development projects to remove constraints for further progress. These could include training of local staff, purchase of commodities, locally if possible; maintenance, completion and construction of facilities especially in health care, possibly in education using local contractors, materials and labor.

4. Support for special needs to strengthen operational support, management, financial and budgetary capabilities of various development institutions etc.

5. Support for a review and feasibility study to determine procedures to shift the ADP projects to a lower level of intensity and costs, extension to other counties and at lower sustainable recurrent costs. This will involve donor coordination and probably a multiyear timeframe.

6. Other activities supporting the development thrust could be fashioned as self-help measures. Special considerations, include attention to conserving foreign exchange needs, and emphasis on encouraging the use of local labor, materials and institutions.

i. Concluding Comment

The USAID may wish to consider these comments in the broader context of the development opportunities in achieving longer run objectives. The current crises calls for steadiness of purpose and in assisting the GOL to continue on its intent to bring the benefits of agriculture development to all segments of the population of Liberia.

However, the bimodal structure of the Liberian agriculture sector poses special problems in policy orientation and implementation for development. The needs of commercial, large scale, and capital-intensive state farms are likely to be attended to by the government. They have better access to government and already have substantial supporting infrastructure. On occasions governments misread the contradictory implications of introducing large scale commercial agriculture often through generous offers to foreign investors for assistance. Overlooked are the high requirements for foreign exchange and much higher level of management . Occasionally these efforts have helped development of cash crops for exports, but have usually failed to address shortages in domestic food supply.

The traditional sector is unorganized and less able to express, or have the opportunity to express their needs for improved technology for roads, schools and public health facilities. Government through appropriate policies can and must serve as proxy for the traditional sector. Mobilization of the potential of this sector through increase production can generate over time rural surpluses to pay for these investments.

The bureaucracy and process of government generally has a built-in bias in policy implementation that favors shorter run objectives. This tendency means an implamentation framework which can be more easily accommodated in project based efforts and especially those through state directed organizations. These are simpler to conceive, organize and likely to yield larger political dividends. Dealing with implementation requirements that are complex in execution which are intended to serve longer run objectives often face bureaucratic resistance.

ANNEX A

REGRESSION MODELS FOR FORECASTING
RICE CONSUMPTION, PRODUCTION, AND IMPORTS

I. Agricultural Economy

The Liberian agricultural economy is composed mainly of subsistence farmers operating within the traditional sector of the overall Liberian economy (World Bank, Main Report, pp.4-6). Most of the farmers produce upland or swamp rice for family consumption plus some excess in case of partial crop failures and for some cash earnings. The major cash crops, however, are coffee and cocoa which about one fourth of the farmers grow for cash earnings. In addition, growers of upland rice may also have inter-crops of cassava, maize, okra, and other vegetables. Citrus trees are often found near homesteads.

Rice marketings by subsistence farmers can be achieved either through sales to LPMC or through village markets. LPMC is now paying 16 cents per pound of paddy for rice delivered at its 3 mills. (In 1984 and 1985, the producer price was 18 cents and previously 12 cents). However, most of LPMC's rice purchases of the 1985 harvest had been through state cooperatives and licensed agents who received commissions and transportation charges from LPMC. Moreover, the actual prices paid to farmers by these agents are widely reported to be in the range of 5 cents to 10 cents per pound of paddy (Bonnard, 1986, p.4; Marketing Division, 1986, pp. 2, 16, 24, 29). In addition, lack of available cash for immediate payment has in the past caused LPMC to buy rice on credit, with farmers' reports of nonpayment, or to cease purchases altogether. Farmers' responsiveness to these shortcomings has been predictably rational.

LPMC plans for the 1986 harvest include immediate cash payments, part of it in U.S. currency, and the development of five satellite warehouses at major towns in the rice-producing counties. Payment of 15 cents in cash at satellite warehouses should raise the effective farmgate price towards 15 cents and may evoke greater marketings by rice farmers. Previous research determined that the elasticity of rice production was only 0.1, while the elasticity of rice marketings was 1.3 (World Bank, Paper 1, p. 13). This reflects farmers' possible substitution of cassava and other crops in the household diet for cash earnings from selling rice within a relatively fixed total production. LPMC is planning for 30 million pounds of paddy purchases from the 1986 harvest versus 2,597,000 pounds in 1985 (MOA, Rice Situation, 3/5/86).

Secondly, about 17 percent of the rice farmers sell their paddy and, in several instances, clean rice in village markets to the rural agricultural population and to Mandingo traders. These latter may then sell to LPMC or to other outlets. A recent marketing survey by MCA reported prices received by farmers varying from 5 cents in June in Bong County to 17 cents in September in Bassa County as the "hungry season" progressed (Bonnard, 1986).

II. Model Construction

Given the objectives of this analysis, three regression models were examined regarding total rice consumption, total domestic production, and total commercial imports. Given the agricultural economy framework, a recursive set of equations was hypothesized to exist with total rice consumption being a function of current year variables; domestic production being a function of current year rural population and lagged variables for prices; and commercial imports being a function of current year economic health and PL-480 imports and prior year domestic production. Recursive models are frequently used with lagged economic responses, and ordinary least square (OLS) is the usual method of estimation (Pindyck, 1976, p. 269). Goodness of fit, especially, in the latter years of the time series, was the primary criterion for model selection.

A. Total Rice Consumption

Initial independent variables examined for forecasting total rice consumption included total, urban, and rural populations and also per capita domestic gross production in real 1971 dollars. Simple correlation among independent variables indicated possible multicollinearity. Despite this problem, the model selected included per capita domestic product, rural population, and urban population. This equation in our judgment provided the best fit to existing data (Pindyck, 1976, pp. 88, 191). As noted in Table 9, only the regression coefficient for urban population is significant at the five percent level. Even though the algebraic signs for domestic product and rural population are as expected, interpretation of the magnitude of each coefficient is subject to multicollinearity problems. However, overall predictability was greater with this specification than others omitting these two variables. Retail prices were not available. Their omission, however, was not judged severe insofar as price elasticities have been estimated as low as .05 (Hiemstra, part 2, 1986, p. 17).

B. Total Domestic Production, Milled Equivalent

Initial independent variables examined included the previous year's official government-administered prices for rice, the average of the previous three years' export prices for coffee, and rural population. Actual farmgate prices were not available. A 51 percent conversion of paddy to milled rice was used (MOA, Production Estimates, 1986, p. 60). Based upon goodness of fit, the model selected for forecasting included only rural population. The official administered rice price series exhibited little variation over time, having been set at 12 cents from 1977 through 1983 and then increased to 18 cents for 1984 and 1985. The coefficient for paddy prices was not significant at the 30 percent level and multicollinearity was not suspected as the cause for this lack of significance. Its coefficient was positive as expected; however, the response was only about 875 metric tons per penny increase in price. This was slightly less than the response of 933 metric tons reported by Trapp (Trapp, 1985, p. 83). Lagged export coffee prices were also not significant and the coefficient was negative in sign. At first sight, this may appear reasonable. However, detailed farming systems analysis reveals that rice and coffee are actually complements in production (Frankenberger, 1985, p. 34).

C. Commercial Imports

The percentages of domestic consumption accounted for by commercial imports (including concessions), PL-480 imports, and previous year milled domestic production were first calculated. Corrections for stocks were not incorporated because such data were not available for early years in the time series. Commercial imports were initially regressed against domestic production, PL-480 imports, and available official foreign exchange. Some commercial importers have mentioned problems in obtaining foreign exchange for imported rice purchases. However, this variable was dropped from the model because official government foreign reserves are basically banking accounts of U.S. dollars counted at the official 1:1 exchange rate, fail to account for actual depreciation of Liberian coinage, and exclude private foreign exchange accumulated through capital flight. In its stead, real per capita gross domestic production was substituted as a measure of the overall health of the Liberian economy. Gross domestic production is considered by MPEA to be closely related to total trade and hence foreign exchange earnings (MPEA, Country, 1983, pp. 6-7). Even though the coefficient for PL-480 imports was significant only at the 18 percent level, its negative impact was as expected. This variable was retained because of its logical impact on commercial imports (Pindyck, 1976,

C. Other Technical Aspects

Two other technical aspects of model construction need to be mentioned.

1. Durbin-Watson

Durbin-Watson tests were either indeterminate or indicated that serial correlation was not present.

2. Heteroscedasticity

Visual examination of regression residuals for the consumption and production models indicated that heteroscedasticity may be a statistical problem with earlier years exhibiting greater residuals than later years. However, this may merely reflect greater errors in data measurement in the earlier years. A generalized least squares procedure was not implemented. The OLS estimates remain unbiased and consistent but not necessarily the most efficient estimates (Pindyck, 1976, pp. 95-106, 241). In addition, weighted least squares procedures are not very efficient for small samples and are quite sensitive to specification and measurement errors.

Visual examination of regression residuals for commercial imports revealed greater residuals for the years 1980 through 1982 than other years. This likely reflects attempts of commercial importers to adjust to PL-480 imports which began in 1980.

III. Major Findings

Models selected for forecasts are detailed in Table 8.

In the consumption model, all variables exhibit expected algebraic signs. Comparison of coefficients for urban and rural populations are not warranted given multicollinearity problems which exist. Even though the coefficient for real per capita domestic product is not significant, its sign is consistent with other research regarding income elasticities. In a recent cross-sectional study of urban households, income elasticities were estimated to be 0.35 at mean incomes and -1.30 at high incomes (Hiemstra, 1986, pp. 17-18). Increasing real incomes could yield an eventual decline in per capita rice consumption.

Rice production is basically a function of the rural population size. This model does assume that rice producers remain a fixed proportion of total rural populations.

TABLE 3

LIBERIA: REGRESSION ANALYSIS
FOR RICE CONSUMPTION, PRODUCTION, AND IMPORTS

	Model	R^2	Durbin-Watson
(1)	$C_t = 39.66237 - .14819DG_t + .16643DU_t + .06777DR_t$ (.356) (2.651) (.323)	.97	1.557
(2)	$P_t = -56.73742 + .14634DR_t$ (10.074)	.88	1.318
(3)	$I_s = 5.29960 + .3712103_s - .4942120L_s - 1.0453300_{s-1}$ (3.507) (-1.4649) (-2.654)	.83	1.909

where C = Total rice consumption, 1000 MT

G = Per capita gross domestic product in real terms with 1971 = 100

U = Total urban population, 1000

R = Total rural population, 1000

P = Total domestic rice production, 1000 MT, milled equivalent with 51% conversion (MOA)

t = Years 1970 - 1985

I = Percent commercial imports of total rice consumption

L = Percent PL-480 imports of total rice consumption

O = Percent prior year domestic production of total rice consumption

s = Years 1974 - 1985

(*) = t-scores

Commercial rice imports are directly related to overall economic growth. In Liberia, changes in gross domestic product have historically been highly dependent upon foreign trade exports. These exports furnish foreign exchange earnings to the Liberian economy. Increasing domestic production will lessen the need for commercial imports. Even though the coefficient for PL-480 is significant only at the 15 percent level, PL-480 imports can lessen the need for commercial imports. In simulating forecasts, PL-480 is set to zero.

IV. Structural Changes

The forecasts generated by these regression equations are dependent upon the existing structures of consumption, production, and importation. Structural changes can invalidate forecasts. Such changes include better yielding varieties for rice production, expanded acreages for rice production per agricultural household, substitution of other cereals for rice consumption as tastes change, and increasing farmers' needs for cash by bringing them more into the monetarized sector of the national economy. In addition, the forecast of commercial imports assumes that historic exchange rates remain constant. The Liberian coinage has depreciated considerably in the last year. Insofar as such changes are not expected to occur in the next 6 years, forecasts listed in Table 5 are warranted.

ANNEX 6

PROJECT PORTFOLIO BY MISSION MANAGEMENT UNIT

I. AGRICULTURE AND RURAL DEVELOPMENT

A. Rural Development Training II (669-0189): This project is a $5.4 million effort to support and to refine the two-year vocational agriculture program of the Rural Development Training Institute located at Cuttington College. The project, a grant to Cuttington, is focusing on staff development, facility construction, managerial improvements and on enhancing the institute's long-term financial viability. The project's duration is from FY 1985 - FY 1990.

B. Agriculture Research and Extension II (669-0188): This project is a $19.9 million, 9-year effort to develop the Central Agriculture Research Institute's (CARI) capacity to conduct adaptive crop, soil and livestock research and to disseminate research results for agriculture extension purposes. The project is providing technical assistance, training and commodities to (1) strengthen research capabilities, (2) establish a socio-economic division, (3) improve administration, (4) conduct off-site trials, and (5) establish liaison with extension agencies. Technical assistance is being provided by the Midwest International Agricultural Consortium led by the University of Missouri.

C. Nimba County Rural Technology (669-0162): This project, authorized in FY 1979, is attempting to develop non-mining employment opportunities in Nimba County through credit and management assistance to small-scale industrial, manufacturing and construction enterprises. The project is for $4.3 million and was recently extended to 1987. It is being implemented through the Partnership for Productivity, a private voluntary organization.

D. West African Rice Development Association (WARDA) II (698-0422): This $12.0 million regionally funded project concentrates on developing high yielding rice varieties together with improved production practices for WARDA's 16 member extension services. The project is scheduled to terminate in December 1986.

E. Agriculture Sector Analysis and Planning (669-0137): The objective of this $3.2 million effort authorized in FY 1977 and scheduled to be completed in March 1987 is to encourage the utilization of the sector framework in the analysis, approval and implementation of development projects and policies. The project is being implemented through a USDA PASA.

II. EDUCATION AND HUMAN RESOURCES DEVELOPMENT

A. Improved Efficiency of Learning II (669-0166): The objective of this $14.5 million 6-year project (1985-1991) is to replicate on a nationwide basis the primary school programmed instruction methodology tested and developed under the Phase I project. The new methodology is viewed as an alternative to the expensive textbook oriented system currently in use. The project is expected to reach 81,000 students as the new methodology is introduced to 740 additional primary schools. The project will also finance the training of 36 trainers, 2,332 primary teachers, and provide refresher training for 1,666 teachers and principals. This project will involve considerable Peace Corps collaboration.

B. Rural Information System (669-0134): The objective of this $12.2 million project authorized in 1980 is to establish a radio network capable of transmitting development-related information to rural inhabitants in major tribal dialects. The project consists of a central programming unit and three regional transmitting stations with appropriate technical and supporting personnel. The current project completion date is 1987. The project involves some Peace Corps collaboration.

III. HEALTH AND POPULATION

A. Primary Health Care (669-0165): The objectives of this $15.0 million project are to (1) increase the number of rural inhabitants with access to basic health care in Sinoe and Grand Gedeh Counties, and (2) strengthen the central and county health infrastructure. The project includes a private sector component under a $3.0 million cooperative agreement with the Christian Health Association of Liberia (CHAL) to support primary health care activities carried out by CHAL through its member organizations. The Government component of the project runs from FY 1983 to FY 1989 and is being implemented through the Ministry of Health and Social Welfare by a University of Hawaii contract team.

B. Combating Childhood Communicable Diseases (698-0421): The objectives of this centrally funded $6[illegible],000 project are to (1) emphasize vaccination as a way of preventing childhood diseases, (2) decrease the effects of malaria, dehydration and diarrhea on children and pregnant women, and (3) strengthen the institutional capabilities to provide such services. The project is furnishing technical assistance, training and some medical commodities. The current project completion date is 1987. The project is being implemented through the Ministry of Health and Social Welfare with the assistance of the Center for Disease Control under a Participating Agency Agreement.

b. Centrally Funded Activities: At present, USAID is involved in eight small centrally funded activities that focus on various aspects of family planning, demographic and census activities and fertility and contraceptive prevalence surveys.

IV. SPECIAL PROJECTS

a. Increased Revenues for Development (666-0122): The objective of this $8.6 million 6-year project is to increase the Ministry of Finance's capability to generate domestic revenue. The project consists of a customs component and a revenue component which are being implemented by U.S. Customs and Internal Revenue Service representatives under a Participating Agency Agreement. Project teams are focusing on income and estate tax collections and on establishing various administrative controls for the tax collection, classification and evaluation of imports, data collection, auditing "bonded" warehouses, analysis of non-dutiable imports, and excise/"stumpage" collection and matters related to procedures and training of revenue agents. The project completion date is December 31, 1988.

b. Economic and Financial Management and Training (666-0134): The objective of this $7.1 million 4-year project with a completion date of 1988 is to develop the Government's capacity to manage its financial resources more effectively. The project is focusing on (1) establishing a new accounting system, (2) automation of the GOL position and payroll system, (3) designing a new procurement system, (4) in-country training efforts, and (5) program budgeting. The project was extended in 1986 to monitor implementation and computerization of the expenditure accounting system, to extend compatible systems to revenue collections, and to introduce uniform budgetary procedures in the Bureau of Budget, Ministry of Planning and Ministry of Finance.

c. Road Maintenance (666-0200): The objectives of this $4.3 million 2-year project begun in FY 1985 are to (1) improve approximately 195 miles of roads to all-weather standards, and (2) develop the construction capabilities of private contractors to perform road maintenance work. The project is closely linked to a $11.4 million IDA activity and will provide technical assistance, training and road maintenance services. Technical assistance will be provided by the Organization of Rehabilitation and Training (ORT), a private voluntary organization.

D. Small and Medium Enterprise Development (655-0201): The objective of this $2.7 million, 2-year project begun in FY 1984 is to encourage the formation and expansion of small to medium sized industrial, construction, services and commercial enterprises by strengthening the institutional capacity of the Small Enterprise Financing Organization to provide technical assistance, training and capital to such enterprises. The project is being implemented by the Partnership for Productivity (PfP), a private voluntary organization. There is limited Peace Corps collaboration in this project.

V. ECONOMIC AFFAIRS

A. PL-480 Title I Rice Imports: Approximately $11.0 million in rice imports were received during FY 1986. These are being utilized to feed the population and to provide counterpart resources for the government's development budget.

B. Economic Support Fund: During FY 1986, the U.S. provided $23.2 million in Economic Support Fund (ESF) assistance for balance of payments debt servicing purposes.

ANNEX E
GOL BUDGET

SUMMARY FY - 1986/87

SECTOR	GOL	$'000 FOR	TOT
1. Agriculture	9,575	25,831	35,406
2. Communications	1,000	2,317	3,317
3. Manpower	570	3,391	3,961
4. Health	1,050	7,700	8,750
5. Power/Energy	- 0 -	1,000	1,000
6. Water	500	2,892	3,392
7. Regional Development	150	3,060	3,210
8. Industry	- 0 -	1,000	1,000
9. Roads	3,330	13,575	16,905
10. Transport	- 0 -	3,100	3,100
11. Urban Development	346	1,500	1,846
12. Housing	1,500	313	1,813
13. Education	750	2,227	2,977
14. Vocational & Technical Training	550	1,728	2,278
15. Contribution to International Organizations	1,660	- 0 -	1,660
TOTAL	20,981	69,634	90,615

FOREIGN FUNDING

GRANT	LOAN	TOTAL
23,000	41,000	69,000

PROJECTS	GRANT	LOAN	TOTAL
Agriculture	8,816	17,015	25,831
Communication	825	1,492	2,317
Manpower	3,391	-0-	3,391
Health	4,200	3,500	7,700
Power/Energy	-0-	1,000	1,000
Water	1,200	1,692	2,892
Regional Development	3,060	-0-	3,060
Industry	-0-	1,000	1,000
Roads	1,975	11,600	13,575
Transport	3,100	-0-	3,100
Urban Development	-0-	1,500	1,500
Housing	313	-0-	313
Education	427	1,800	2,227
Vocational and technical training	728	1,000	1,728
Contributions	-0-	-0-	-0-
TOTAL	28,035	41,599	69,634

AGRICULTURE

PROJECTS	$'000 COL	FOR	TOT
Lofa County Agriculture Development Project, I & II - LCADP (MOA)	950	3,000	3,950
Bong County Agricultural Development Project - BCADP (MOA)	1,100	4,200	5,300
Nimba Integrated Rural Development (MOA)	475	1,400	1,875
Nimba Rural Tech. (PFP)	70	311	381
EEC Rubber Revitalization (SEPO)	- 0 -	800	800
Liberia Rubber Development Unit (MOA)	500	- 0 -	500
Decoris Project (IOPC) - MOA	1,000	8,502	9,502
Rice Seed Multiplication Centers (MOA)	700	1,313	2,013
Establishment of Agri-Research Institute (CARI) - MOA (including Saye-Dubo and Animal Traction	1,400	1,660	3,060
Agriculture Training - RDI (MOA)	70	1,345	1,415
Rice Purchasing (LPMC)	3,000	- 0 -	3,000
Butaw Oil Palm	- 0 -	1,400	1,400
Bomi Woods	300	1,500	1,800
Coffee Cocoa & Rice Dev., Zwedru (LCCC)	- 0 -	400	400
*Training (Cooperatives)	10	- 0 -	10
TOTAL	9,575	25,831	35,406

1

FOREIGN FUNDING

GRANT	LOAN	TOTAL
8,816	17,015	25,831

*Transfer to Recurrent

COMMUNICATION

PROJECT	GOL	FOR	TOT
		$'000	
*Liberia Rural Communication Network (LRCN)	1,000	2,317	3,317
TOTAL	1,000	2,317	3,317

FOREIGN FUNDING

GRANT	LOAN	TOTAL
825	1,492	2,317

*Transfer to Recurrent

MANPOWER

PROJECTS	GOL	$'000 FOR	TOT
Planning & Monitoring (MPEA)	100	180	260
Budget Bureau Training Program (BOB)	300	1,931	2,231
PL-480 Monitoring (MPEA)	50	- 0 -	50
Transportation Planning & Coordination (MPEA)	20	280	300
National Food Assistance (MPAC)	100	1,000	1,100
TOTAL	570	3,391	3,961

FOREIGN FUNDING

GRANT	LOAN	TOTAL
3,391	- 0 -	3,391

HEALTH

PROJECTS	GOL	$'000 FOR	TOT
Primary Health Care (MOH)	500	3,400	3,900
Population and Health (MOH & MPEA)	50	3,500	3,550
Health Facilities (EEC)	- 0 -	800	800
Hospital Equipment (JFK)	500	- 0 -	500
TOTAL	1,050	7,700	8,750

FOREIGN FUNDING

GRANT	LOAN	TOTAL
4,200	3,500	7,700

POWER/ENERGY

PROJECT	GOL	$'000 POR	TOT
Petroleum exploration Promotion	- 0 -	1,000	1,000
TOTAL	- 0 -	1,000	1,000

FOREIGN FUNDING

GRANT	LOAN	TOTAL
- 0 -	1,000	1,000

WATER

PROJECTS	GOL	$'000 FOR	TOT
Monrovia Water Supply Phase II	- 0 -	500	500
Rural Water program	500	2,392	2,892
TOTAL	500	2,892	3,392

FOREIGN FUNDING

GRANT	LOAN	TOTAL
1,200	1,692	2,892

REGIONAL DEVELOPMENT

PROJECTS	GOL	£'000 FOR	TOT
Self-Help Project (Maryland Village Dev. (MRD)	150	1,000	1,150
Micro Projects (MIA)	- 0 -	1,200	1,200
Other EEC Projects (MIA)	- 0 -	860	860
TOTAL	150	3,060	3,210

FOREIGN FUNDING

GRANT	LOAN	TOTAL
3,060	- 0 -	3,060

INDUSTRY

PROJECT	GOL	FOR	TOT
Small & Medium Scale Enterprises (SEFO)	- 0 -	1,000	1,000
TOTAL	- 0 -	1,000	1,000

FOREIGN FUNDING

GRANT	LOAN	TOTAL
- 0 -	1,000	1,000

ROADS

PROJECTS		$'000 GOL	FOR	TOT
Kle Mano River Union Highway (MPW)		200	4,500	4,700
Highway Maintenance (MPW)		1,000	5,975	6,975
Kakata-Totota Highway (MPW)		1,000	1,100	2,100
Feeder Roads:				
Lofa	(MPW)	160	243	403
Nimba	"	120	243	363
Bassa	"	150	1,514	1,664
Maryland	(MRD)	140	- 0 -	140
Sinoe	"	140	- 0 -	140
Grand Gedeh	"	140	- 0 -	140
Grand Cape Mount	"	140	- 0 -	140
Montserrado	"	140	- 0 -	140
	TOTAL	3,330	13,575	16,905

FOREIGN FUNDING

GRANT	LOAN	TOTAL
1,975	11,600	13,575

TRANSPORT

PROJECTS	GOL	$'000 FOR	TOT
Monrovia Port	- 0 -	600	600
Harper Port	- 0 -	2,500	2,500
TOTAL	- 0 -	3,100	3,100

FOREIGN FUNDING

GRANT	LOAN	TOTAL
3,100	- 0 -	3,100

URBAN DEVELOPMENT

PROJECT	GOL	$'000 FOR	TOT
Monrovia Urban Development (MUD)	346	1,500	1,846
TOTAL	346	1,500	1,846

FOREIGN FUNDING

GRANT	LOAN	TOTAL
- 0 -	1,500	1,500

HOUSING

PROJECTS	$'000 GOL	FOR	TOT
Temple of Justice	500	- 0 -	500
Site & Services	- 0 -	313	313
University of Liberia	1,000	- 0 -	1,000
*New Georgia Estate	116*	- 0 -	116*
TOTAL	1,500	313	1,813

FOREIGN FUNDING

GRANT	LOAN	TOTAL
313	- 0 -	313

*N.E.A. Funds (not included in total)

EDUCATION

PROJECTS	GOL	£'000 FOR	TOT
Improved Efficiency of Learning (MOE)	550	350	900
Fourth Education Loan (MOE)	200	1,800	2,000
EEC Training Program (MPEA)	- 0 -	77	77
TOTAL	750	2,227	2,977

FOREIGN FUNDING

GRANT	LOAN	TOTAL
427	1,800	2,227

VOCATIONAL & TECHNICAL TRAINING

PROJECTS	GOL	$'000 FOR	TOT
Wm. V.S. Tubman Technical College (MOE)	50	200	250
*Liberia Industrial Occupational Center (LIOC) - (MOY&S)	300	- 0 -	300
Youth Training Centre (MOY&S)	50	88	138
Agriculture & Industrial Training (AITB)	50	440	490
Stadium (MOY&S)	100	1,000	1,100
TOTAL	550	1,728	2,278

FOREIGN FUNDING

GRANT	LOAN	TOTAL
728	1,000	1,728

CONTRIBUTION TO INTERNATIONAL ORGANIZATIONS

PROJECTS	GOL	$'000 FOR	TOT
Mano River Union Budget (MFEA)	700	- 0 -	700
U.S. Peace Corps (MFEA)	200	- 0 -	200
West African Insurance Institute (MCIT)	40	- 0 -	40
ECOWAS Budget (MOF)	200	- 0 -	200
ECOWAS Fund (MOF)	200	- 0 -	200
OPEX Trust Fund (MFEA)	20	- 0 -	20
World Bank & IFC (MFEA)	300	- 0 -	300
TOTAL	1,660	- 0 -	1,660

ANNEX D

LIST OF PEOPLE INTERVIEWED BY THE MEMBERS OF THE PL-480 TITLE I STUDY TEAM IN LIBERIA

October 22 - November 26, 1986

Ministry of Agriculture

Scott Toweh, Minister of Agriculture
James Mehn, Deputy Minister of Agriculture, Planning and Development
McArthur M. Pay-Bayee, Jr., Assistant Minister for Planning and Evaluation
Rudene Wilkens, Coordinator for CMEU, Statistics, and Computer Unit
Benjamin Temple, Director CMEU
Tarnue Koiwou, Marketing Section

Liberian Produce Marketing Corporation

J. Boima Rogers, Planning Manager
Simeon M. Moribah, Sr. Agric. Economist and Special Assistant
Isaac Emmanuel Tolbert, Manager, Gbarngá Estate

Nimba County Rural Development Project

Fred Goericke, NCRDP Office, Monrovia
Karl F. Kirscg, Acting Project Coordinator, Saclepea
Tim Mayr, Agronomist
Joachim Schroeder, Agronomist
Karl Kaiser, Economist, Extension Liaison
William Riedijk, Consultant, Appropriate Technology
Peter Mah, Liberian Senior Extension Staff
Melton Craig, Liberian Senior Extension Staff
James Kardakor, Liberian Rice Producer
Moses Manque, Liberian Warehouse Manager

International Monetary Fund

F. L. Asunsade, Resident Representative

West African Rice Development Association (WARDA)

Alieu M. B. Jagne, Acting Executive Secretary
V. Nyanteng, Senior Economist, Fendall
J. Olufowote, Rice Breeder, Fendall
L. Annot, Economist, Fendall

University of Liberia, College of Agriculture

Bismark Reeves, Dean of the College of Agriculture
Ernest G. Asante
Nathaniel Appleton
M. J. W. Draper
Cyril E. Broderick
James Kiazolu
Isaac K. A. Okoh
Anthony J. Taplah

World Bank

John Kendall, Resident Representative

Central Agricultural Research Institute (CARI)

Arthur Gedeo, Soci-Economic Analysis Officer
Robert Finley
Walter Wilkening

U. S. Embassy

Stan Cohen, Assistant Agricultural Attache
Regional Office Abidjan

Ministry of Planning and Economic Affairs (MPEA)

Mary Dennis, Sr. Economist
Francis Momolu, PL-480 Coordinator

USAID

Mary Kilgour, Director
Mike Rugh, Deputy Director
Harald Marwitz, Program Officer
Gerard Neptune, Agriculture Officer
Edward Costello
Gary Cohen
Mark Gallagher
Robert Ayling, Project Officer, WARDA
Christopher Brown
Thomas Eighmy
Lee Hall
Stanley Handleman
Beatrice Perez
Phillip Gelman
Robert Braden, Engineer

Cuttington University College, Suakoko
Dr. Joseph S. Swanu, Ch. Social Service Dept.
Jacob L. Piorra, Prof. Economics
Ralph Cummings, Prof. Business Management
Bengaly Kamara, Professor
Four Senior class students

Bong County Development Project, Suakoko
Samuel W. Wolo, Sr., Deputy
Benjamin Jlay, Technical Advisor
Gabriel Coleman, AEO

Smallholder Rice Seed Program, Suakoko
Victor Tyler, Plant Manager and O/C Outgrowers program

Seed outgrowers farm near Suakoko

Liberian Rural Communications Network, Station at Gbarnga (ELRG)
Rufus Kaine, Station Manager
H. Kolleh Velemel, Executive Producer
Jeff Wason, PCV
Gregory A. Kintz, Production Advisor
William E. Mackie, Chief of Party

Market Wholesalers, dealers (Gbarnga)

Market women (Gbarnga Market)

Liberian Finance and Trust Company
C. T. O. King, III, former member Advisory Board,
Nimba Rural Technology Project

Nimba County Rural Technology
Jura Kromah, former member Advisory Board,
Nimba Rural Technology Project

Agriculture Sector Analysis and Planning
Alvin Potter (USDA)
Freeman Daniels (USDA)
Reginald Fannah, Coordinator MOA
Patricia Bonnard, PCV

ANNEX E

GLOSSARY

ACDB	Agriculture and Cooperative Development Bank.
ADP	Area Development Project.
AfDB	African Development Bank.
AID/W	Agency for International Development/Washington.
BCADP	Bong County Agricultural Development Project.
CARI	Central Agricultural Research Institute.
CCC	Commodity Credit Corporation
CDA	Cooperative Development Authority.
C.I.F.	Cost, Insurance and Freight. The cost of an imported commodity at the port of entry.
Counterpart Funds	GOL revenue that is generated by PL-480 sales and is programmed for development purposes through the PL-480 agreement.
DA	Development Assistance. U.S. Government monies used for development purposes, usually in development projects.
EEC	European Economic Community
ESF	Economic Support Funds. U.S. Government monies used in the Liberia program for balance-of-payments and budgetary support.
ERP	Economic Recovery Plan, Liberia, September 1986
FAO	United Nations Food and Agriculture Organization.
F.A.S.	Free Alongside Ship. The cost of an exported commodity delivered to the ship.
FDA	Farmers Development Association, NCRDP
F.O.B.	Free on board
FRG	Federal Republic of Germany.

FY	Fiscal Year. The U.S. fiscal year runs from October 1 to September 30. The Liberian fiscal year runs from July 1 to June 30.
GDP	Gross Domestic Product.
GOL	Government of Liberia
IARC	International Agricultural Research Centers
IBRD	International Bank for Reconstruction and Development (World Bank).
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IITA	International Institute of Tropical Agriculture
IMF	International Monetary Fund.
Kuu	Traditional, intermittent custom of cooperation in work.
LCADP	Lofa County Agricultural Development Project.
LPMC	Liberian Produce Marketing Corporation.
MCIT	Ministry of Commerce, Industry and Transportation.
MHSW	Ministry of Health and Social Welfare
MIA	Ministry of Internal Affairs.
MOA	Ministry of Agriculture.
MOF	Ministry of Finance.
MOFA	Ministry of Foreign Affairs.
MOH	Ministry of Health.
MFEA	Ministry of Planning and Economic Affairs.
MT	Metric ton
NBL	National Bank of Liberia.
NCRDP	Nimba County Rural Development Project.
NFS	Non-factor services
NPA	National Port Authority.

OAU	Organization of African Unity.
ODA	Official Development Assistance
OFD	OCean Freight Differential. The difference between freight rates charged by U.S. vessels and those charged on world market. The U.S. Government pays the difference for PL-480 cargo.
PCV	Peace Corps Volunteer.
PfP	Partnership for Productivity.
PL-480	U.S. Public Law 480. This law authorizes various forms of U.S. food aid.
PMU	Project Management Unit
POLI	Physical Quality of Life Index
PSC	Project Steering Committee.
PVO	Private Voluntary Organization.
RDI	Rural Development Institute.
RSF	Rice Stabilization Fund
SEFO	Small Enterprise Financing Organization.
Self-Help Measures	As defined in Section 106(b) and 109 of PL-480, the steps a Title I recipient country agrees to take towards progress in agricultural development, rural development, nutrition and population planning and related areas. Specific self-help measures are negotiated by the recipient country and USAID, and recipients are further expected to submit annual reports detailing progress.
SRSP	Smallholders Rice Seed Project
SSU	Schistosomiasis Surveillance Unit.
TA	Technical Assistance.
Title I	A U.S. foreign assistance loan program that provides commodities to a recipient government, which in tuen sells these commodities.

UMR	Usual Marketing Requirement. The usual level of commercial imports for a commodity imported under a PL-480 program. It is determined by averaging the level of commercial imports for the previous five years.
UNDP	United Nations Development Program.
U.S.	United States.
USAID	U.S. Agency for International Development Mission to Liberia.
USDA	U.S. Department of Agriculture.
USG	United States Government.
WARDA	West African Rice Development Association.

ANNEX F

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