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FROM - MONROVIA

SUBJECT - End of Tour Report--William Frederick Johnson, Chief

REFERENCE - M. O. 326.3 Report Control No. U-513

Reference, End of Tour Report prepared and submitted by William Frederick Johnson, Agricultural Economics Advisor, Acting Chief, Agriculture Division.

This report includes a summary of all USA activities in Agriculture in Liberia from 1944 to June 30, 1964.

The index appears as Appendix II at the end of the report.

RHETTS

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AID-5-40 (9-62) W/O HECTO (Do not type below this line) PRINTED 10-62

END OF TOUR REPORT

William Frederick Johnson, Agricultural Economic Advisor - Acting Chief
Reports Control Number U-513.

1. GENERAL

The writer arrived in Liberia on November 15, 1961. The tour normally would have terminated on November 15, 1963, but ended on February 5, 1964, due to a leave of absence, and was extended upon request to April 5, 1964. This report covers the entire period.

The principal assignment was as agricultural economics advisor to the Department of Agriculture and Commerce. On February 23, 1962, upon departure of the Food and Agriculture Officer, I was appointed Acting Chief of the Agriculture Division of USAID and given the responsibilities of directing USAID's programs of assistance in agriculture and forestry, and served in this capacity for the rest of the tour.

At the beginning of my incumbency, USAID's activities in agriculture included: agricultural research with five (5) technicians; agricultural extension with five technicians (5); forestry with three (3) technicians; agricultural administration with one (1) technician; a participant training officer; the agricultural economist; a marketing specialist; an agricultural credit advisor; and a home economist. The rural youth specialist worked in the extension program, and the fisheries expert worked in the research program. This made a total of eighteen (18) advisors. Agriculture was the

oldest and had been one of the strongest supported programs of the Mission.

At the time I took over, the U.S. Government had been ~~xxxxxx~~ providing assistance to Liberia in agriculture for 16 years (1946 to 1962), and had spent close to three million dollars on the programs. It was difficult for many observers to see any progress in the development of agriculture, as a result of this assistance, other than rubber. Some appraisers felt that Liberia's future lay only in rubber and iron ore, and that there was little hope or economic feasibility of improving farming above the subsistence level in the near future, and Liberia should use her revenue from iron and rubber to import food. Some reasoned that the returns were not justified by the cost. Many thought that the development of Liberia would depend on education, followed by industrialization. Also, there was a real question in the minds of many of the sincerity, dedication, and capability of the Liberian Government to help the subsistence farmers, which comprised 70 percent of Liberia's agriculture in 1962 and had been all of it, practically in 1946.

Those who thought differently had difficulty in substantiating their arguments. Reliable statistics were lacking. No, or inadequate, records had been kept by AID personnel nor by their predecessor organizations. The Government had only recently begun keeping statistics, and these were mostly export figures. Arguments were often emotional and impressionistic.

Certainly, it was time for an appraisal of USAID's assistance programs, approaches, and accomplishments in agriculture after almost 20 years. It was apparent that if the U. S. did decide to continue its assistance program in agriculture, some different approaches would have to be found to speed up the rate of development, considering the temper of Congress and the critical questioning of the American people. Appraisals were begun, but before completed USAID's policy of assistance in agriculture in Liberia was changed to phase ~~most~~ out of the programs, at least until a comprehensive appraisal could be made, and programs could be developed, which could show project by project an input-out ratio which would make economic sense. The first decision was made to phase out Research in June, 1962. Others have followed until at present the activities in agriculture have beenreduced to one forester and an agricultural economist, programmed for FY 1965, with a possibility of a credit and a cooperative management specialist.

My role in this period of transition has been, on the AID side, to try to ~~xxxxxx~~ appraise past accomplishments and to develop approaches for future assistance in line with new AID policy, while on the GOL side, I have had to placate the impact of the reduced assistance, advise the Department on its current programs, and assist in planning and developing new programs, projects, and policy aimed at stimulating and promoting the development of agriculture. In spite of a very difficult and delicate situation, an effective, working relationship was always maintained, and some objectives were accomplished.

The arrival in Liberia of the Liberia Survey Team, headed by Dr. Edward Fei, in January, 1964, to assess the state of development of Liberia, the direction of future development, and to determine what AID has accomplished and might accomplish in the future was most welcomed assistance. I have assisted the survey team in its work as much as possible, and Dr. Fei and Dr. Vernon Johnson have assisted in evaluating the GOL's agricultural programs and in recommending guidelines and a set of priorities for the Department of Agriculture to follow during the period of financial shortage faced by the Government as a result of the accumulation of maturing foreign indebtedness, and the enforcement by the I.M.F. of stringent financial management policy.

This report summarizes the achievements of this tour, and attempts to highlight some of the accomplishments ofthe U. S. assistance programs in agriculture as a result of nearly 20 years of efforts. At this point, the U. S. Government has spent $3,028,000 on agricultural assistance in Liberia as of June 30, 1964. A breakdown is contained in Appendix I.

II. OBJECTIVES

The first objectives of the U. S. Government in agriculture in Liberia in 1946 were to produce. Agricultural production specialists were sent here to achieve this, engaging in direct operations.

By 1951, the objectives had been broadened to institution building. Production remained an objective, but it was realized that if the Liberians were going to be able to take over, some institutions had to be built to take over the functions. There were none at the time within the Government for agriculture or forestry.

As the institutions were started with Liberians assuming active roles, the assistance policy changed from direct operations to advisory. This was the policy under which the Central Agricultural Experiment Station at Suakoko was operated from its inception in 1953 to the time AID phased out in 1962, and it was one of the reasons of the slow progress of the programs, although this does not explain the type of programs of research.

Institution building has remained one of the main objectives of AID/Liberia's agricultural programs, under a number of titles varying from "Government Reorganization" to "Extension Service Training".

Increasing production, or increasing productivity in agriculture have continued to be the ultimate objective. The methods, rather than the objectives have changed.

A new objective in institution building has, or is evolving, in our assistance policy now. This is building private institutions, as well as Government. This is the program of farmers' cooperatives which was started in Liberia during this tour and is in its infancy now.

In this program, as in some of the others, it will be necessary to "operate" again instead of "advise". In fact, one of AID's mistakes was that the policy of advising was adopted too soon, before the Government had people with sufficient training to use the level of advice offered.

The specific targets of this assignment have been to ~~appr~~ appraise the immediate needs, potentials, and possibilities ofdevelopment in agriculture; the capabilities of the Department of Agriculture, and Government to implement programs and projects for development; and to advise and assist in the determination, planning, and implementation of policy, programs, and projects for development, both of a short range and a long range nature.

III. ACTIVITIES

In order to perceive the accomplishments, a review of conditions at the beginning and a summary of U. S. activities in agriculture during the past 18 years would be in order.

A. State of Development — 1944

In 1944, a U. S. Economic Mission made a survey of Liberia, which resulted in the assistance program that was started in 1946.

When assistance started, there was no Department of Agriculture. A Bureau of Agriculture in the Public Works Department operated on an annual budget of $6,000, and had no agriculturists or foresters. Its only function was to inspect export commodities. The entire Government operated on an annual budget of $1,000,000, much of which went to support a small army.

Monrovia had a population of 10,000 to 15,000 people, most of whom were farmers or part-time farmers. The only local market was Lebanese stores.

The Port of Monrovia had not been constructed. There were 70 miles of road in the country.

Of the estimated 1,000,000 people, there was an estimated labor force of 312,000 consisting of 32,000 wage earners, 25,000 of whom worked for Firestone, 7,000 salaried employees, 7,000 unpaid family members of wage earners, and a few hundred self-employed. The balance of 253,000 were subsistence farm laborers. The purchasing power from Liberian wages and salaries is estimated to have been $5,000,000 annually at that time.

There are no reliable agricultural statistics except export figures. Determination of rice production is made empirically from an estimate of the available farm labor supply and the required labor in-put in upland rice farming, as determined in a one-season test at Suakoko in 1953-1955 (1980 man hours, male and female, to produce 500 pounds of rice in one acre in one year).

A substantial part of the subsistence farming effort in Liberia in 1944 went to the production of the principle staple food, rice, by upland, shifting cultivation. In this method land is cleared and burned and one crop of rice is grown, after which the land must remain in bush fallow for a period of 5 to 8 years. It is necessary to move on to a new area after one crop, because the soil has become eroded, and organic matter has become decomposed by the intense rain and heat.

It is estimated that rice production was about 110,000 metric tons annually of unmilled rice in 1944 (yielding 82,500 metric tons of milled rice). This, with cassava, was sufficient to sustain the people at a low dietary level. With a population of 1,000,000 people, the average daily consumption would have been 0.489 pounds per person per day. (Allowing 1200 tons for seed rice). This is lower than the 0.600 pounds per day allowed by Firestone for its workers, which has been the basis of most calculations of production in Liberia in the past. However, labor requirements make production at a higher level appear unrealistic. The people probably eat more cassava or have a lower diet than imagined.

Labor requirements indicate that the estimated 253,000 available farm laborers in 1944 could have produced the 110,000 metric tons of rice with a total labor input of 200,000 man years of labor. Of the labor input, approximately one-fifth was strictly male labor, one-fifth strictly female, and the remainder mixed. (One man-year is estimated to be 2800 hours of work in the tribal society.) The average production per man-year would have been 1.210 pounds of unmilled rice.

Commercial farming was practically non-existent. Everybody farmed, and mainly for subsistence. Tribal farmers earned some cash income from gathering and processing palm nuts and piassava. Some cash crops were grown by Americo-Liberians.

The Liberica coffee, an indigenous variety, and cacao were cultivated limitedly along the coast. None was grown in the interior by tribesmen, except around some of the Missions. Exports of coffee and cacao in 1947 were less than 75,000 pounds each, valued at $23,000 and $27,000, respectively.

Firestone had gotten a good start in rubber, exporting 43,200,000 pounds produced on 51,000 acres in 1944, valued at $9,418,282. This represented 91.4 percent of the value of all exports from Liberia. There were 1,200 acres of independent Liberian rubber farmers producing 360,000 pounds annually.

Following are other export figures in 1944:

Piassava	$175,000
Palm Oil	180,000
Palm Kernels	376,000

These three products all originate from the forests, and are gathered and processed by the tribal people.

There was some sugar cane, fruits, and vegetables grown along the coast by the Americo-Liberians, but none grown by the tribal people, except around Missions according to reports of early surveys.

The only forestry industry was a few saw mills among some concessions, such as Firestone.

In 1944 the fishing industry was confined to small Kru and Fanti canoe operations. The annual catch is estimated at about 200,000 pounds.

B. Review of Assistance/~~xxxxxx~~ Programs 1946-1964

Roads--Ports--Railroads

The primary requirement for agricultural development in 1944 was roads and a harbor which could handle ocean going vessels. Monrovia Port in 1944 received and loaded its cargo by lighters to freighters anchored in deep water, as did all other ports.

The U. S. Government constructed the Freeport of Monrovia after the war under an extended Lend Lease program, and the port was opened in 1948.

The U. S. Army constructed the Monrovia to Ganta-Guinea-border road which was opened in 1947. Road construction remained a major program of the U. S. Government until 1962.

Other Governments were also assisting in port and road construction by loans to the GOL.

By 1957, a road had reached Voinjama in the Western Province and Tappita in the Eastern Province. The Bomi Hills road and railroad had been constructed and had been in use already for 10 years. There were approximately 700 miles of roads by 1957 at about the time the LAMCO operation started.

By 1964, 35 miles of construction remained to link the Monrovia-Tappita-Tchien road with the road from Harper, Cape Palmas. In the Western Province roads had reached the Sierra Leone and Guinea borders. LAMCO had constructed a road for use of building its railroad which was in use. This railroad and the Bomi Hills railroad could be used for hauling farm products, although ~~xxxxx~~ little of this was being done. There were approximately 2,100 miles of primary, secondary, and rural access roads in use by 1964.

The Monrovia Port had been improved. The Buchanan Port had been constructed by LAMCO and the Greenville port at Since had been constructed by a loan arranged by the West African Fruit Company for its banana operations, which failed. (It later went into rubber production.)

The port of Harper had been opened and was in use for exporting rubber and logs.

Training Liberians for Government and Private Services

A participant training and GOL scholarship program was started in the early period of the U. S. Assistance Program which continued throughout. Pinder reported 500 were in training under U. S. and GOL sponsorship during the period 1946-1957. There were sixty studying agriculture in 1962. In 1964, the number in training in agriculture was nineteen. Those who had completed training were returning to fill important Government and private jobs.

The assistance Program encouraged the establishment and development of a Department of Agriculture, started in 1948, and the development of people in their positions as they returned from ~~xx~~ training. The present Secretary, a forestry graduate, who started with the Department in 1952 as a young counterpart to an American forester, was the Department's first college graduate. The growth of the Department was slow. Most U. S. technicians had worked most of the sixteen years with counterparts who had less than a high school education, or they worked with no counterpart. By the end of the Fifties, the graduates of colleges in the U. S. and Liberia were returning in increasing numbers to fill posts. There were sufficient numbers to start a Bureau of Forestry in 1955 and a National Extension Service in 1961.

Agricultural studies were introduced at Cuttington College, and a College of Forestry was established at the University of Liberia under the U. S. Assistance program. These were the only two colleges in the country, and the latter had developed during the period from a teacher training college started at the College of West Africa, a high school. Vocational agriculture was introduced at Booker Washington Institute, a privately endowed vocational high school.

U. S. foresters taught at the College of Forestry until FAO took over the job in 1959. Some of the research staff at the Central Agricultural Experiment Station taught part-time at Cuttington College, located nearby, having been moved from Maryland County to the Central Province shortly after the road was constructed through the Province to the Guinea border.

The U. S. sponsored training at Booker Washington and Cuttington College and later the University of Liberia by financial assistance to the institutions and to students.

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A very important development in the program was the bringing of tribal people into the advanced training program which started in 1960-1961. Previously almost all advanced training was of Americo-Liberians. There were not many high school students available until this time. From 1960, a large percentage of the students enrolled under the assistance program at B.W.I., Cuttington, and University of Liberia were from the tribes.

There had been much advancement during the sixteen years in the number of trained people occupying Government and private positions. However, there was still a shortage. More important, there was a lack of quality and dedication among those who had received training. The percentage of those who conscientiously performed were too few. The encouraging fact was that there were some who were qualified and who did perform.

Research Program and Soil Survey

Little was known of agriculture in most of Liberia in 1944, practically nothing of the soils and little about the climate of different parts of the country. The possibilities of introducing new crops, of improving traditional practices of farming, or of increasing crops which were known to be growing were all unknown.

A soil survey was made by William F. Reed as one of the fact-finding surveys carried out by the United States Economic Mission to Liberia in 1944-48 and a report published by the U.S.D.A. in 1951 (Agriculture Information Bulletin No. 66).

It was recognized that determining most of the answers would take years. Some answers could be found quickly by U. S. technicians whom the Government could send. However, no scientific means of making these determinations could be made without facilities, equipment, and an installation for scientists to work. A research station was necessary. From the long range point of view, the station would require Liberians to run it. An institution had tobe created.

In 1953, the Central Agricultural Experiment Station was established at Suakoko at the site which had been selected as a Government demonstration farm in 1947. The station was staffed with Americans who worked closely with the Agricultural production specialist in a program to test varieties of plants, animals, and poultry, and to propagate them for distribution. Plants were tested at Suakoko and propagated there and at nurseries and demonstration farms throughout the country. A soils laboratory was established and put into operation.

Much of the efforts and results of the Experimental station were never published. However, there is tangible evidence of these results in coffee, cacao, vegetables, fruits, fresh water fisheries, poultry and rice production in Liberia today.

All the vegetables which were successfully introduced in Liberia were tested there first. The citrus industry got its start through the research program, as did the commercial poultry industry through the identification of diseases and initiation of a vaccine program of control. The fisheries hatcheries were established at Suakoko, and the fresh water fisheries program emanated from here. The first foreign variety of rice, the Bentoubia, was successfully tested at Suakoko and multiplied there. Commercial swine growing, although still not large, got its start from the Station.

Generally, the expectations of the station were too high, and the judgment of its contribution too soon and too superficial. Research takes long, even with established institutions. The training of a research staff takes years. Liberia did not, nor does it now, have an established research institution, although there is a good installation and a few capable young men who could be trained under proper conditions.

The program may have accomplished more if Americans had had full authority to run the station, and if it had been supported logistically by the U. S. Government. Also, one of the weaknesses was lack of continuity of programs, caused by too short tours of the technicians. Much valuable work was started but never continued. The Americans who did the research should have spent time in other West African countries to observe the work there.

The pulling out of the program by the U. S. was illy planned and timed. It was made without adequate notice to the Liberian Government and without helping the Government plan what should or could follow.

Since the withdrawal of U. S. AID, the Government has attempted to carry on a limited program with employed foreign technicians. There has been some useful work done by the FAO rice agronomist in continuation of work started by the U. S. A good herd of M'Dama beef cattle was built up by an Israeli for breeding purposes. The citrus propagation work under the supervision of an FAO technician has done well. The fresh water fingerling propagation and feeding experimental programs have progressed. However, not much progress has been made in building a permanent institution which can conduct programs with continuity. The problems of logistics support and of poor administration still handicapped operations. A new approach to building a research institution in Liberia is needed.

Agricultural Production

The first American agricultural production specialist in the U. S. Assistance effort in 1946 started a program to introduce the cultivation of rubber, coffee, cacao, citrus fruits and vegetables among the tribal farmers, and to increase production among others. Nurseries were established in all parts of the country, even in areas remote from roads. Started in 1946, by 1957 there were 75 cacao, coffee and

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citrus nurseries, and eight demonstration farms for vegetables throughout Liberia. Fifty-eight were among the clans.

The U. S. Government in cooperation with the GOL operated these nurseries and distributed seeds, seedlings and plant material during the period 1946-1957. Frank Pinder reported the following distribution during the period: ten million (10,000,000) seedlings and six tons (6 tons) of seeds of superior planting materials of coffee, cacao, rubber, bola, citrus, coconuts, two hundred thousand (200,000) sweet potatoe vines, and fifteen thousand (15,000) pounds of vegetable seeds. Pinder also reported the following increases in acreage, 90 percent of which was among the tribal people:

Tree Crop Acreage Planted Over Five-Year Period
(1951 - 1956)

	1951	1952	1954	1955	1956	Total
Cacao	1,500	2,100	2,500	2,800	3,100	12,000
Coffee	600	1,378	3,656	3,750	4,400	13,820
Rubber	400	1,050	1,400	1,700	1,850	6,400
Kola Nuts	250	600	1,260	1,423	256	3,989
Banana	25	250	850	1,200	2,000	4,325
Citrus	40	125	900	1,020	1,625	3,710
Coconuts	20	58	125	200	150	595

Two-hundred (200) swine and twenty-thousand (20,000) chicks had been successfully introduced from the U. S. and a commercial pountry industry started by identifying and controlling certain diseases. The industry was able to produce sufficient eggs to meet demands without importing by 1962. The chicken population was 45,000 layers producing 8,000,000 eggs annually valued at $600,000. Growing of poultry meat was just beginning.

The U.S. Government in effect operated an Extension Service during this period, assisted by Liberians who had little formal education and no training in agriculture or forestry.

The agricultural production program had continued throughout the decade of the Fifties to emphasize food crops, particularly rice, rubber, citrus, vegetables, poultry, coffee, and cacao.

Rubber by Liberian Producers

In 1955, a National Production Council was organized with U.S. support to undertake specific projects. It employed Dutch experts and operated several rubber nurseries growing seedlings for Liberian farmers. A coffee mill was constructed for processing coffee in the Voinjama area. An oil palm project was started in 1961 in Bassa, but had not made much headway by 1964. The Council also took over an UNESCO

resettlement project at Kpain which consumed a lot of resources but never amounted to much. However, the Council's main program was promoting rubber farming among Liberians. Assisted by Firestone before the price of rubber declined drastically, the program was very successful.

The number of independent Liberian rubber producers increased from less than 12 in 1944 to 437 in 1957, producing 3,000,000 pounds. By 1962, the number had reached 5,000 farmers. However, low prices and inefficient management caused the number actually tapping to decrease to 2,500 in 1964, producing 18,000,000 pounds annually valued at $3,000,000 on 50,000 acres. Those who went out of production simply left trees untapped. Of those who remained, most practiced poor management resulting in low productivity, about one-third of that of Firestone. Also, the quality was inferior. A program to improve quality among the Liberian producers was launched in 1963.

Coffee and Cacao

The efforts to promote coffee and cacao production by the U.S. agricultural production specialists paid off. Expansion continued with Government assistance until 1960 when the prices dropped drastically. For the following 2 years the crops were practically forgotten until a modest recovery in prices stimulated farmers to harvest new coffee and cacao farms which had been allowed to grow up in bush. Coffee and cacao exports have shown a remarkable increase during the past 2 years (1962-1963). The coffee mill opened by the National Production Council in 1962 was working at full capacity on two shifts in 1964. The increase has been continuous over the past 16 years, see table below:

Coffee Exports 1947-1963

(Bureau of Economic Statistics—GOL)

Year		Amount (in pounds)	Value (in Dollars)
1947	Excess of	75,000	27,000
1953		906,000	248,658
1954		514,000	231,339
1955		734,000	226,689
1956		1,051,000	333,353
1957		869,000	282,279
1958		1,058,200	340,297
1959		2,219,800	643,973
1960		1,964,600	538,819
1961		1,684,600	354,613
1962		4,217,400	612,427
1963		7,524,000	1,544,544

Exports of cacao also increased but not as rapid as coffee (see table below).

Cacao Exports 1947-1963

(Bureau Statistics - GOL)

Year		Amount (in pounds)	Value (in Dollars)
1947	less than	75,000	22,000
1953		596,000	149,136
1954		1,161,600	431,637
1955		1,047,200	314,826
1956		1,089,000	263,143
1957		968,000	231,932
1958		1,333,200	411,424
1959		1,744,600	540,232
1960		2,186,800	507,260
1961		1,476,300	354,613
1962		1,842,000	272,603
1963		2,098,000	454,809

The increases of both crops came from new acreage on farms which had been planted in the vigorous campaign during the Fifties, but had not been harvested at maturity, because of low price to Liberian farmers. This was particularly true of farms off roads by more than one-half day's walk. The results were from the efforts of men in American assistance programs 5 to 10 years ago, who had almost been forgotten. However, not all the increase can be claimed by Liberia. Estimates of traders are that 40 percent comes over the border from Guinea. Even so, the production results would be gratifying to those who set the goals 5 to 10 years ~~ago~~ ago.

Better world prices, better prices to Liberian farmers enforced by the new Produce Marketing Board with participation of the East Asiatic Company, and roads were all contributing factors.

Rice

After 1944, rice production steadily declined, requiring imports. Imports in 1953 were 3,000 tons of milled rice. By 1962, imports had reached 30,000 metric tons annually, equivalent to 40,000 metric tons of unmilled rice. The decline resulted from migration of labor from the farms, shift to other crops and activities because of the low price incentive to farmers, low productivity of farm labor in the primitive upland cultivation of rice and other crops, and from sociological factors.

The increase in import requirements caused the concern of the GOL and U.S. assistance experts. In 1953, the U.S. cooperated with the GOL in starting a swamp rice project to determine the feasibility of growing rice in a swamp continuously year after year on the same land. If possible, this could replace upland rice cultivation. The soil survey done by Reed indicated that there are approximately 700,000 acres of swamp land unutilized in Liberia. Development of upland rice cultivation would eliminate the destruction of an estimated 50,000 acres of valuable forest land per year. It was also thought possible that yields would be highest per acre and labor input much less.

A project was started at Gbedin and continued for 5 years in conjunction with a vigorous extension program. The project was discontinued in 1958, but the efforts of Extension, assisted by the US AID and later by FAO in the Freedom from Hunger campaign, continued.

There were several factors which caused the discontinuance of the project. Poor administration and planning, lack of logistics support, unadaptability of heavy mechanized equipment to Liberia's climate and conditions, and lack of support of the local tribal people were among the reasons reported. Of all the factors mentioned, lack of support of the local people is believed to have been the greatest contributing factor to the failure of the project to take hold. Not one report mentioned the failure of swamp rice to grow. It did.

Swamp rice culture spread from these efforts. In 1957, Pinder reported 3,000 acres of swamp rice in cultivation in the Central Province. The culture of the Gissi swamp rice had spread over from Sierra Leone to the Western Province about 1952 according to a statement by the Agricultural Missionaires at the Episcopal Mission at Bolahoun. In fact, one of the Fathers is reported to have helped bring the culture to the Kolahoun area from Sierra Leone. The GOL also employed Sierra Leone farmers on the staff of the DAC to teach Liberian farmers swamp rice culture.

Although there had been an over-all national decrease in rice production since 1944 there has been some increase in production nearer the roads and closer to Monrovia during the past few years and there has also been some shift to swamp rice cultivation.

There is much evidence that the 1963 crop is greater than recent previous years, resulting from a price increase by $2 per hundred in 1962 and by the Government's emphasis on swamp rice cultivation. It is known that the Firestone laborers produced approximately 5,000 tons of rice on 10,000 acres of swamps, with over 75 percent being new production. It is estimated that 30,000 acres of swamp rice were in cultivation by 1964, producing 13,000 metric tons per year. For the first time since the ceiling price was raised to $9.50, the

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retail price of rice in Monrovia dropped to $8.50 in December 1963, indicating a considerable inflow of Liberian grown rice. In contrast, Liberian rice could hardly be found on the markets after the previous harvest season of 1962-63.

If estimates are correct, there has been an increase in productivity caused by swamp rice cultivation. It is estimated that a farm labor force of 166,000 laborers in 1963, including part-time workers, produced 84,000 metric tons of unmilled rice with a labor input of 132,800 man-years, averaging 1,400 pounds per man-year of labor. This is an improvement by 200 pounds per year over the figure estimated for 1944 of 1,200 pounds.

Fruits and Vegetables

Observers report that 15 years ago scarcely any Liberian grown fruits and vegetables could be found in the Monrovia market, and that only local rice was found in the markets at that time. Most of the fruit and vegetable production appears to have developed during the past 10 to 15 years through the efforst of the Government in research, demonstration, distribution of plant materials, and extension efforts. Considering the history of the development of Monrovia and the wage earning population there was little reason to grow for a commercial market in 1944. Fifteen years ago the population of Monrovia was scarcely over 10,000. Today it is 80,000. The wage earning population in 1948 was less than one-half that of today, and consisted principally of Firestone workers.

A market survey in Monrovia in May 1963 done by the Extension Service and USAID showed, that $10,000 worth of fresh fruits and vegetables, grown in Liberia, are sold daily. This amounts to $2,500,000 per year for Monrovia alone with a population of 80,000, or approximately $30 per capita per year. The present estimated wage earning population of 300,000 would consume fruits and vegetables grown in Liberia valued at $9,000,000 annually. This does not include rice, eggs, meat, poultry, or fish.

The German Batelle Institure made a similar survey in 1963 in the same markets but done in greater detail, which revealed daily sales in Monrovia of local produce valued at $20,000 to $30,000. The survey was of local markets only and not stores. The Batelle survey included rice and fish which were excluded in the GOL-USAID survey.

Fisheries

In 1954, a survey of the ocean fishery resources off the shores of West Africa was made by a fisheries expert sent by the U.S. Government to determine the possibilities of commercial operations. The findings of this survey were favorable, showing possibilities off the coast of Sierra Leone where there is an ocean shelf. This resulted in the establishment of a Liberian commercial

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trawling company in 1955, the Mesurado Fishing Company, followed by the construction of an ice plant in Monrovia to supply the boats. Unfortunately, the prospects immediately off the Liberian coast did not look good because of the absence of a shelf.

Assistance was provided by TCA of the U.S. and the FAO to local Liberian fishermen for net making and fish processing (smoking) after the survey.

The new fishing industry produced 361,000 pounds of fish by trawling during the first year's operation in 1955. It gradually increased production until a volume of 2,000,000 pounds annually was reached and maintained through 1962. In 1963, the industry made a sudden increase in production. The Mesurado Company made a contract with Japanese trawlers. The harvest of fish was frozen in convenient cartons, weighing 44 pounds, at sea. This permitted a much wider distribution of fish. Market women began transporting the carton by taxi cabs 150 to 200 miles into the interior. Prices dropped from 30 cents to 15 cents wholesale. Production during the latter half of 1963 reached 16,000,000 pounds, or an annual rate of 12,000,000 pounds, valued wholesale at $1,400,000 approximately, and on the retail market at $3,000,000.

A system of distribution and storage was being developed. New cold storage facilities were being constructed in Monrovia, Harper, Bomi Hills, Gbarnga, Buchanan and Nimba.

The serious question facing the fishing industry was supply of fish. Japanese and Russian trawlwers were operating off the coast of West Africa harvesting fish for the whole of West Africa and other countries. Trawlers from African countries were increasing. It was not known if or how long the supply of fish would last. It was reported that nets were being used with too small an opening to permit growth of the fish population. There were no known regulations or means of enforcing restrictions by West African countries.

The small canoe operators had increased their activities, too. Some had begun to use outboard motors and nylon nets. It was estimated that there were 6,000 people living in Liberia engaged in fishing in 1962. There was still much room for improvement of methods of fishing and processing for the small fishermen. An important problem still faced the country of determining the extent of the resources, what the role of the small fisherman should be, and the means to help him.

A fresh water fish pond program was started in 1952 to construct and stock ponds with fingerlings propagated at Government hatcheries which were established at Suakoko in the technical assistance program, as a means of increasing the supply of protein food in the interior. Several individuals and Missions constructed ponds in the interior with the advice of Government technicians. The

Government supplied the fingerlings. By 1964, fifty-five ponds totaling 100 acres had been constructed. Five (5) were community ponds and the rest were Missions and private ponds. Yields of a well managed pond showed a production of 1,200 pounds per acre per year in actual tests. Yields could reach 3,000 pounds with excellent management. At 1,200 pounds per acre, the annual production would amount to over 100,000 pounds per year, valued at $30,000.

Forestry

Forestry received much emphasis because of the vastness and value of this undeveloped resource. Surveys and sample inventories were carried out over a period of 11 years by U.S. foresters. Assistance in creating a Government Forestry Service started at the beginning with the surveys and has continued throughout the entire 16 years.

A Bureau of Forestry was established in 1955. Its functions have been to establish forestry policy for development and control of resources; to establish and protect national forest reserves for future development; to encourage investment in utilization of resources; to control timbering operations; and to plan and implement programs for regeneration.

The College of Forestry was created with U.S. assistance at the University of Liberia. U.S. foresters taught there during the first years. An FAO staff took over in 1959. The College began to turn out graduates by that time. All of the present 12 foresters with B.S. degrees employed by the Bureau in 1964 had received training at the College.

Laws have been passed and surveys made to establish, demarcate and protect 4,000,000 acres of National Forests. An inventory of these resources has been underway since 1959 by German teams and is 50 percent completed. Forest policy has been promulgated and is in operation to control development of all forest, both in and outside the National reserves.

From 1944 to 1955, timbering operations were limited to approximately 500,000 board feet annually. After 1955 when more roads and ports were opened and local demands increased, production climbed rapidly. In 1963, there were 16 companies, both foreign and local, in the timbering industry. The production of logs amounted to 16,000,000 board feet in 1963, valued at $2,500,000. Approximately 60 percent of the logs were exported.

Processing of timber had not made much advancement until 1963. The principal processing facilities were operated by the concessions such as LAMCO for their own use. There were a few saw mills in operation, but not meeting the demand, and lumber was still being imported, especially cured lumber. In

17.

1963, eight of the timber companies were equipping for processing. There were other large industries indicating an interest in investing in processing in Liberia.

An important part of the U.S. assistance in forestry was an aerial survey of the entire country which has been invaluable in all development work. The photogrammetric maps made from the survey are still the only topographic maps available.

C. USAID ACTIVITIES 1961-1964

a. General

The assistance which remained throughout this period was Extension, Forestry, and Agricultural Economics. In all, institution building remained major goals. There were five (5) Extension Advisors, three (3) Forestry Advisors, and two (2) Fisheries Advisors during most of the period. Extension and Forestry advisors worked in their respective Bureau or areas. Work in Extension included Rural Youth and Fresh Water Fisheries. The Agricultural Economist in this capacity and as chief advisor advised the Secretary, Under-Secretary and Bureau Directors, of the Department of Agriculture.

The Secretary, the Under-Secretary, and the Bureau Directors were advised on the planning and administration of their programs. Economic studies and appraisals were made, and special position papers and reports were prepared for international conferences. They included "The Rehovoth Conference on Comprehensive Planning for Agricultural Development in Developing Countries" in Israel in August 1963, which I attended with Assistant Secretary James T. Phillips, Jr.; "The Bi-Annual FAO Conference" in Rome in November 1963; and the "International Trade Conference of Geneva" in March 1964

Programs which continued to receive emphasis were food production, chiefly swamp rice, livestock, poultry, fresh water fisheries, vegetables, rubber, farmers' cooperatives, credit, forestry, and the Gbedin project. The rubber program was shifted from expansion to improvement of management. The forestry program emphasized utilization of resources by stimulating industries to invest.

Advice and assistance were provided on evaluating and planning of the Gbedin Project, and in the cooperative organizational and training and credit program there.

Recently, President Tubman requested that a similar project be started in Maryland County. Advice and assistance were provided in selecting a location for the project.

A Plannine Office was established in the Department in 1962 and functioned until the Planning Officer was sent to the States on a participant training program in August 1963, when the functions were taken over by the Assistant Secretary.

A PL-480, Title IV program was started in 1963 with U.S. AID assistance and generated $663,271 in credit in 1963 for the Liberian Government which was used as credit on the Gbedin project, the poultry industry, and a number of small loans to farmers.

Special studies and surveys initiated by AID and jointly conducted with the Department included a price study for rice, a livestock survey of Liberia, a poultry survey, a market survey of local fresh fruits and vegetables, a rural access road requirement survey, a pilot sample survey for an agricultural census which was conducted cooperatively by the Extension Service and the Bureau of Statistics, and an inventory of personnel in training in agriculture and forestry and requirements of these industries.

b. Over-all Achievements in Development of the Department of Agriculture

1. Organization

The Department of Agriculture and Commerce was divided into a Department of Agriculture and a Department of Commerce in January 1964. Stephen A. Tolbert was reappointed Secretary of the Department of Agriculture. Romeo Horton was appointed Secretary of the Department of Commerce. Assistant-Secretary James T. Phillips, Jr. resigned and Samuel P. Cooper was appointed Under-Secretary of Agriculture.

Mr. Anthony Melton, former Extension Director was made ~~Spec~~ Special Assistant to the Secretary, and Mr. James Sirleaf took over Extension upon his return from ~~t~~ training in the U.S. in March 1964.

A coordinator of Operation Production an an assistant joined the Department in January 1964.

The Budget Officer was slated for participant training in the States. A Swedish accountant was added to the staff.

The organization of the Department is functional. The ~~divi~~ divisions are Administration, Finance, Research, Forestry, Land Use and Extension Division. The Agricultural Credit Corporation is a separate, semi-governmental organization. The Land Use Bureau has the Gbedin project. The Training Center falls under Extension. Animal and Plant Quarantine are part of the Research Service. Rural youth activities, farmers' cooperatives, local markets, and vocational agricultural training are responsibilities of the Extension organization. Vocational agricultural training is a joint responsibility of the Department of Education and the DAC, with DAC supplying the teachers.

The National Production Council had not been transferred to the Department, although it was slated to do so.

Marketing activities on the international level are handled by the Department of Commerce. A Produce Marketing Board, established under the Bureau of Commerce of the former DAC to function jointly with the East Asiatic Company which was given the sole right to export coffee, cacao, palm kernel and oil, and piassava, was transferred to the new Department of Commerce. The Board had been created in an attempt to stabilize the domestic prices, improve the quality of products through better local grading, and to establish firmer outlets in the international market.

2. Leadership

There has been improvement throughout the Department in leadership, in analysis of problems, in recognition of capabilities and limitations, in planning, in policy formulation, and in administration of ~~pp~~ programs. Key men within the Department are able to make a more realistic appraisal of the real problems faced in the development of Liberia's agriculture. They have learned to work more effectively as a team, to hold meetings, discuss problems, and reach a decision together. There was more use of the committee system and less one-man rule. There was better reporting, both oral and written, more follow-up, more delegation of authority, more coordination within the Department and with other Departments of Government, and better appraisal of results and methods. Also noteworthy was the increase in the sense of responsibility of a few key men in response to the leadership of the Secretary and Assistant Secretary for Agriculture. Unfortunately, these qualities of leadership and dedication were restricted to a few persons, but even these had been hard to find a few years ago.

3. Attitude

Attitude toward work and toward the tribal people improved generally. This was caused by the leadership and inspiration of a few of the top people in the Department who responded to the President's repeated admonition of his Government officials of the need for greater devotion to work, and by his public statements and Executive Orders concerning treatment and rights of the tribal people, and by his continuous efforts toward unification. The change was particularly noted after the tests with tribal farmers on the Gbedin project. Mr. Melton no doubt influenced the change. His experience in living in the Interior when his father, the current Secretary of the Department of Interior, held office as District Commissioner, made him sympathetic toward the tribal people. The change came about also by a realization that development of Liberia's agriculture will depend much on development of the tribal people.

Dedication to their work and performance were still lacking by many of the personnel of the Department who had received college training. This is one of the most discouraging factors in attempting to build institutions in Liberia. However, there are now a sufficient few with the proper attitude to begin building.

The Department now is following the policy that development of agriculture must be done by the private sector, the farmer, and not by direct Government farming; that farmers must have price and other incentives to produce; and that it is Government's role to provide technical assistance, training, credit assistance, roads, and other infrastructural needs; and that Government must try to stabilize prices and to promote marketing.

4. Staffing and Programs

(a) The Secretary

Secretary Tolbert, educated at Michigan State University, where he received B.S. and M.S. degrees in Forestry, is an excellent administrator, a good businessman, a strong-willed and outspoken man who has contributed much to his country's development, perhaps more so in private business than he has been able to do in Government. He is a capable speaker and knowledgeable professional man who demands respect in international forums. He was elected Vice-Chairman of the FAO Bi-annual Conference in Rome in November 1963, and chaired the Conference on several sessions. While politically he is obliged to take the African viewpoint, often his view is American. His harsh dealings with those whom he considers his enemies, or enemies of his programs, often earns him the reputation of being blunt and unscrupulous. His loyalty to the President does not prevent him from voicing his viewpoint when he is in disagreement on an issue. Secretary Tolbert has spent 12 years in the service of the Government, all with the Department of Agriculture and Commerce.

Upon his reappointment, without the help of former Assistant-Secretary James T. Phillips, Jr., the Secretary has had to assume more responsibilities for the agricultural programs. This has caused him to rely more heavily on me. In accepting his reappointment, the Secretary announced publicly his decision to relinquish all direct management responsibilities in his private business to employed management, and to devote full time to his Government job.

(b) Under-Secretary

Samuel P. Cooper, who succeeded James T. Phillips, Jr., is younger and more inexperienced than Phillips. He has made a conscientious and determined start at the job. Daily assistance is provided him.

(c) Extension

The Extension staff expanded to 124 Liberians as follows: a Director, two Deputies; one Associate Deputy for Home Economics; seven subject specialists; eight county and province extension agents; eight home economics aides; and 86 extension aides and two clerks. The organization was further strengthened during the year by the addition of two Peace Corpsmen to work on public information, and by the employment of an Israeli poultry specialist. The organization had reached one-third its goal in number of qualified personnel. Sixteen of the personnel of the service have B.S. degrees, and 58 have high school degrees.

In organization and effective field work, the greatest achievements in Extension were made in Montserrado County and the Central Province. This was due to several factors. Personnel in Gbarnga were supported logistically and financially more efficiently at Gbarnga than in outlying areas because of the RAD set-up which kept salaries paid and vehicles moving. This was also true in Montserrado County where there was immediate access to the Monrovia office. Farming in both areas was more progressive because of the proximity to the local Monrovia markets. Most of the fruits, vegetables, sugar cane, and poultry coming to Monrovia are grown in Montserrado and the Central Province. Most of Liberia's independent rubber producers are also located in these two areas. Also, these two areas had two of the best extension agents and were advised by the U.S. advisors.

(d) Rural Youth

The 55 4-H Clubs with 1,700 membership are clearly the results of the efforts of the Extension Service. The 4-H Club of Liberia designed its Emblem which was unveiled in a ceremony in Monrovia in May 1963. More important was the introduction of the incentive to produce by projects which produced the first cash income received by the rural youths.

(e) Agricultural Education

The Extension Service conducted vocational agricultural training in seven (7) high schools with an enrollment of 704 students.

The College of Agriculture (not an Extension activity), which was started under an FAO program in February 1962, had a staff of six (6) and an enrollment of 34 students in 1963. Nineteen (19) students have successfully completed the first year.

Enrollment in agricultural courses at Booker Washington Institute, a privately endowed vocational high school (endowed by Phelps-Stokes of New York) receiving USAID assistance, dropped to four (4). This low interest in agriculture is believed to be caused by the low paying jobs available in agriculture, and the availability of higher salaried jobs for graduates who receive other technical training.

(f) Cooperatives

A Poultry Cooperative and the Gbedin Farmers' Cooperative were organized began operations in 1963. The Gbedin Cooperative expanded its membership to seventy (70) farm families during the year. The Poultry Cooperative was organized for cooperative purchase of supplies and for establishing and operating a broiler processing plant. It had successfully lowered the price of feed to $6.50 from $7.50, but the Cooperative was in financial trouble, requiring the Credit Corporation to clamp down on management.

Other cooperatives were in the process of being formed in Maryland and Bassa Counties, principally for credit and cooperative purchasing of farm materials.

(g) Up-Grading Rubber Produced by Liberian Farmers

In 1963 with the price of rubber reaching a low of 22 cents per pound on the world market (16 cents to Liberian producers), Firestone found that it could no longer market the low grade rubber from Liberian farmers. Approximately 14,000,000 pounds of this rubber, valued at over $2,000,000, had accumulated in the New York warehouses. The company appealed to the Department of Agriculture to put on a campaign to encourage Liberian producers to up-grade the quality of their rubber by adopting better management practices.

When the Extension Service started its campaign in June 1963, there were only 24 out of 2,100 producers selling rubber which met the standard grade, and only 15 percent of the rubber was of standard quality. After 3 months of campaigning, over 58 percent of the rubber purchased by Firestone was of standard quality.

Meeting the standard quality is a must for Liberian producers to save the $3,700,000 per annum derived from the sale of approximately 14,000,000 pounds of rubber. The Extension Service has contributed measurably toward this, as it rests with this organization to reach the farmers. Firestone has only one man who devotes part of his time to attention of the Liberian farmers, and the company has announced that it can no longer provide the field assistance to Liberian farmers that it has in the past.

(h) Agricultural Research

The Central Agricultural Research Station at Suakoko, operated after U.S. AID withdrew assistance in 1962 under the direction of Julius Cooper with a staff of six (6) Liberians with B.S. degrees in agriculture, mostly from U.S. universities, and one employed Israeli, assisted by two (2) FAO experts. Two Peace Corpsmen were assigned to the station to assist in administration and in report writing.

Programs of experimentation were conducted in rice, citrus, tobacco, animal husbandry, poultry, and the study of practical methods of feeding and propagating fish fingerlings during the past 2 years.

The station's citrus nursery stock was increased for distribution to farmers. Approximately 60,000 bud-grafted plants were in the nurseries.

(i) The Agricultural Credit Corporation

The Agricultural Credit Corporation was established in 1962. The plan for the corporation is to build a small, well-trained national staff capable of training management of a few well organized farmers' cooperatives, established on a sound economic basis, through which credit could be provided to farmers. The corporation took over the assets of the old Agricultural and Industrial Credit Corporation. Its source of finance has been the PL-480 Program.

The Credit Corporation has a Liberian Director, an assistant, and a Swedish accountant. The Director is capable and reasonably dedicated, but needs advice and assistance.

Dr. Stanley Krause, USAID/Chana Credit Specialist, spent 6 weeks (September through October 1963) in Liberia advising on and studying the cooperative and credit program, problems and possibilities.

He concluded that the system of collections would have to be strengthened for a sound program. He recognized the possibilities of assisting in the development of small credit cooperatives from the voluntary, spontaneous credit groups which have sprung up among some farmers, but advised to proceed slowly along the general plan developed, with concentration on training the Gbedin Agricultural Training Center for training farmers from other areas in cooperative management.

The President recognized the problem of debt collection in his annual message in December 1963 and requested action from the Liberian Legislature to strengthen laws on indebtedness.

(j) The Gbedin Project and Gbedin Agricultural Training Center

The Gbedin project was resumed in December 1961 by Government with the assistance of 15 Chinese-farmer-technicians sent by the Republic of China under an assistance agreement. The Chinese arrived in December 1961 and developed a small irrigation system for growing rice and other crops in rotation. They demonstrated the possibilities of growing three crops of rice per year on the same piece of land. The assistance program was continuing in 1964 with 12 Chinese farmer-technicians. Three Chinese engineers are employed by the GOL on the project.

A test program of training six Mano farm families in irrigation agriculture was undertaken on the advice of AID as a test to determine the adaptability of the farmers to this culture. The cooperative organization was used for management purposes, controls, and for extending credit to the farmers. After two successful training crops, the training program was extended to 70 farm families and the land development project was expanded to 500 acres. The management training course was started for the management of the cooperative "Dokodan" ("let us try" in Mano). The ultimate aim is to establish each farm family on 7 acres of land as an owner-operator.

(k) Appraisal of the Gbedin Project

The Gbedin organization is divided into two parts: the Training Center and the Land Development Project. Both operations are under one Director who is Chairman of a Coordinating Committee composed of the Extension Agent, a Chinese representative, a representative of the farmers, USAID, and Israel.

The financing of the Training Center is by the Government as a Government investment in development of human resources. Whereas, investment in the land development is through loans to the cooperative, with the purpose being to make the development aspect self-liquidating by requiring the trained farmers to purchase the land at a cost equal to the ~~ddd~~ cost of financing the development.

The project is a pilot scheme to attempt to find solutions to some of the sociological, engineering, and economic problems, and to gain experience for development of the Gbedin valley and for training of tribal farmers in irrigation agriculture. Therefore, a comprehensive statement of its feasibility is not possible at this time. The pilot operation of 100 acres and 70 farm families should provide answers to many of the problems and experience and data for better planning.

In considering the sociological objectives, stated and implied, in changing the way of life, economic status, and social system of a portion of the tribal people, there can be no argument that the project is worthwhile. However, achievement of these objectives will depend, in the final analysis, on the economic success of the project. If this proves possible, a solution

will have been found for an orderly resettlement of a portion of the tribal people into permanent, improved farming communities, and an orderly transition from the traditional community to a more modern one.

When the results of the first two tests of training are reviewed and compared with the income from tribal upland farming, the advantages appear phenomenally favorable economically. The yield of rice of 3,000 pounds of rice per acre two to three times a year in this system of farming is 10 to 15 times greater than upland cultivation which yields 500 pounds per acre one time per year. The production per man-day is 20 to 30 times greater than that of upland farming, and the total labor input per acre of land per crop is one-fifty as great. The operating costs for equipment and supplies, and the maintenance costs are small.

The economics of a 500 acre project and 70 farm families appear feasible when using present cost estimates of developing the land, and applying the costs and the experience of three tests on twenty acres of land. However right or wrong, this data and judgement of human resources may prove to be, there is no other experience in Liberia to go by at present. The 70 farmers may or may not be capable of being trained to engage permanently and successfully in this type of agriculture. The tests looked favorable enough to recommend a pilot project of 100 acres from which more accurate data and answers could be obtained but they would need managerial assistance for some time. The intense interest of the first six farmers and their continuance in training beyond the second crop indicated that an economic incentive as provided by the increased income offered good possibilities of holding farmers to this type of agriculture.

The Government of Liberia will need the assistance of the Chinese farmers for another 2 to 3 years to prove the pilot project. The GOL will also need assistance in training farmers in management of the Dokodan Farmers' Cooperative (and other cooperatives), and in getting the Gbedin Agricultural Training Center operating as a national training institution for farmers.

The Gbedin pilot project will provide some answers to the question of the possibilities of training Liberians (farmers and Extension personnel) as effective teachers of irrigation agriculture for similar projects conducted by the Government or private farmers.

Undoubtedly for a few years, even after they have learned the farming technique, the farmers will need management guidance, either employed by Government or the Cooperative from outside sources or furnished in a foreign assistance program.

The sooner outside, expert management can be engaged to manage the cooperative and let it become more independent of Government, the faster the Project will develop.

(1) Forestry

The Forestry Bureau has built an organization around Anthony Sayeh, a native of the Kru Territory, who is an extremely capable administrator. The organization consists of a National and four Regional offices. There are 12 professional foresters with B.S. degrees and five sub-professionals with high school degrees.

The Bureau has been very successful in the forest conservation program as well as in promoting forest industries.

IV. Summary of AID Achievements in Agriculture

a. Government Organization

A department is established and is functioning. Given adequate finances and ~~[illegible]~~ improved fiscal management and administrative practices within the entire Government, it can function sufficiently well to perform. Technical assistance in all fields will be needed for several years until a larger staff of qualified, dedicated, performing Liberians can be built up and trained. The emphasis of private enterprise in development facilitates U.S. operations here. There is a nucleus of conscientious, dedicated Liberians capable of following through on assistance. The department's policy and approach to development of agriculture through development of human resources is favorable.

b. Some of the Definable Increases in Income to Liberia in Agriculture Resulting from U.S. Assistance

		Increase in Annual Production Income
(1)	Forestry	$3,500,000
(2)	Marine Fisheries	900,000
(3)	Fresh Water Fisheries	30,000
(4)	Private Liberian Rubber	3,000,000
(5)	Poultry (Eggs)	600,000
(6)	Coffee (60% export) less 1944 prod.	899,000
(7)	Cacao (60% export) less 1944 prod.	250,000
(8)	Fresh Fruits and Vegetables	9,000,000
(9)	Swamp Rice (½ of estimated prod. 6,500 tons @ $140/ton)	910,000
	Total	$21,089,000

This list is by no means all inclusive. No attempt has been made to evaluate increased income in meat production, such as swine and poultry, or processing of forestry or agricultural products.

Revenues to the Government from these operations are not estimated. The list is presented to show that the $3,000,000 invested by the U.S. in agriculture and forestry has not been wasted in terms of economic income. The total income could be much greater.

It may be argued that private Liberian rubber production would have resulted anyway. Perhaps it would, but Firestone acknowledges the contribution of Government.

It may not be apparent that the U.S. could claim a contribution on rice income. However, it is pointed out that rice production would have been less by 6,500 tons (estimated) because of productivity difference if there had been no swamp rice program.

There is no doubt that Government's efforts are responsible for the increased acreage of coffee and cacao, which is just coming to light by increased exports.

c. Evaluation of Programs

Due to the Government's difficult financial position and the urgency of Operation Production, an Evaluation Committee was appointed by the Secretary of Agriculture in January 1964 to evaluate the program and make recommendations for a set of priorities to be used in allocating scarce financial and manpower resources.

The Committee was composed of three representatives of USAID, Firestone, University of Liberia, and Government and private citizens of Liberia. I served on the Committee.

Following is a summary of recommendations of the Committee to the Secretary:

(1) That operations and personnel be reduced and sufficiently concentrated to adequately and efficiently support a few, well run, hard hitting operations, with priority given to the products which would yield the greatest income to Liberia in the shortest time.

(2) That inefficient, non-performing personnel be dismissed or transferred to jobs they are capable of performing.

(3) That no net hiring be done during the period of austerity.

(4) That manpower planning be coordinated with the Government's training program.

(5) That the system of laborers payroll and petty cash be decentralized to project levels.

(6) That the function of the National Production Council be transferred to the Department of Agriculture immediately.

(7) That first priority be given to rice production, rubber management, and forestry industries.

(8) That the Department give priority to and concentrate on the development of large areas of swamp lands scientifically for irrigation agriculture, with concentrated, intensive training of farmers to grow two to three crops of rice per year, in rotation with other crops.

(9) That a training program to improve management of Liberian rubber farms be carried out.

(10) That the Bureau of Forestry concentrate on stimulating investment and working with industries to utilize the forestry resources.

(11) That the Department's efforst on any commodity or operation be concentrated on identifiable projects which can be adequately supported, and the results measured.

(12) That the Department seek assistance of the UN Special Fund or employ a professional director from outside Liberia on a long range contract of 5 to 6 years to take over the program of research on a few subjects, and to train qualified, performing Liberians. Priority should be given to rice research for the present.

(13) That assistance should be sought to make hydrological, engineering and soils surveys of a number of swamps in preparation for development of irrigation agriculture.

(14) That second priority be given to protein foods (fish, cattle, swine, poultry and protein plants) and coffee, and that these be ~~prod~~ promoted through private enterprise, assisted in credit and cooperative efforts, and that where possible these be incorporated into existing projects without disturbing the first priorities.

(15) That further studies be made of possible commercial projects, and methods and extent of possible development be explored for oil palm, cattle, marine fisheries, animal feeds, and other possible products and further planning be done for agricultural development.

(16) That the planned agricultural census be supported and a statistical section established in the Department.

(17) That the Department strongly recommend to Government the priority needs for construction of 1,100 miles of additional rural access roads during the next 5 years for development of agriculture and forestry. This requirement is in addition to the primary and secondary roads planned for inaccessible areas.

d. Some Economic Factors Concerning Development of Agriculture and Industry in Liberia

1. Prices

Fluctuating international prices on most export agricultural products, protective tariffs, and competitive synthetic products offered little encouragement for development of Liberia's agriculture for traditional export crops.

The decline in the price of natural rubber and continued competition of synthetics made farmers question its future and caused the Government to discourage further plantings. The low price put a greater premium on good management.

The recovery of the price of coffee in 1962 offered enough encouragement to some coffee growers to cut out the bush on their coffee farms and resume picking coffee which had been allowed to rot unharvested on the trees during the past few years. Greater care and attention were being given new crops which were coming into production. However, the price and outlook still offered little encouragement for the relatively long range investment in planting new crops and waiting 5 to 6 years for any income.

The cocoa situation was even less encouraging. The slight recovery of prices on the international market caused some increase in gathering resulting in greater exports.

The price of palm oil and palm kernels on the international market has declined during the past few years, contributing to the decline in production and exports of palm kernels and palm oil. The export of palm kernels dropped 50 percent of that of previous years, and the export of palm oil dropped to zero. In fact, there is a scarcity of palm oil (red, paricarp oil) on the domestic market, and the domestic price has risen above the international price; $55 for a 55 gallon drum locally, as compared to $35 on the international market, wholesale.

Price is not the only factor which has caused a decline in production of oil palm products. A shift of labor to greater income producing efforts than those of gathering and processing wild palm nuts (almost all of Liberia's production) was another contributing factor.

Continued low prices of piassava, another wild product which is gathered from swamps and has always afforded a very low income for the use of labor, caused exports to drop still further. Synthetic fibers have replaced many of the uses of piassava for brushes and brooms. Its continuation at all in the market appears to be based on some tradition in use, and established processing facilities in Europe.

The outlook for the timber industry continued favorable with steady prices in Europe and a domestic market which is still short in supply.

2. Foodstuffs—Rice

Because of the low price of most of the traditional export crops, and the uncertainty of their future, and because of the rapid increase in imports of foodstuffs, reaching close to $12,000,000 in 1963, greater emphasis was placed on producing foodstuffs for the domestic markets, as was advised, particularly in view of the retail value of this food, amounting to an estimated $30,000,000.

Rice which accounted for $4,500,000 (wholesale) of the value of the imports, was number one on the list.

Liberia's safest future for agricultural development is to give priority to develop those food and other crops and commodities which are in short supply to meet domestic needs, and eliminate import requirements, establishing where necessary any import tariffs and import controls to stabilize the domestic price and provide a measure of protection for the investor.

The crops which are indicated are those which are currently grown in Liberia and are being pushed by the Government, with proper consideration given to some new crops. The crops and commodities include rice, animal and poultry meats, peanuts, cassava, oil palm, vegetables, fruits (citrus, pineapples, bananas, plantain), and animal grains.

3. Export Crops

At the same time Liberia cannot neglect its traditional export tree crops. The investments already made are great, and tree crops are the most suitable for Liberia's climate and for upland soils. Most predictions for natural rubber indicate that it can compete in price to a point as low as 10 to 12 cents per pound to the producer as long as quality is maintained. The lowest price since World War II was 16 cents per pound, the price in 1963. The main problem becomes one of management to increase efficiency and reduce costs. Rubber still remains Liberia's most important crop, with Firestone and six other concessions in production, and 2,600 independent Liberian farmers growing rubber. Approximately 40 percent of the Government's revenue is still derived from rubber.

While the concessions need no help in management, the Liberian producers do. They could improve production and quality from existing

plantings by better management. It has been estimated that the income of these producers could be increased from the present $3,500,000 per annum to $12,000,000 by improvement in efficiency of labor in tapping, at current prices. The tappers of Liberian producers are tapping about ¼ to 1/3 the quantity of tappers of Firestone.

The outlook for coffee and cocoa are uncertain. They are too uncertain for more large mono-crops plantations with large capital investments to risk without Government protection, as is provided by Marketing Boards in some countries which regulate prices through purchases and marketing of the products, taxing profits when the price is high and subsidizing when the price is low. Liberia does not have sufficient industry and sufficient trained administrative personnel, nor sufficient finances to support such a program. Therefore, the farmer must be the one to take the risk.

4. Small owner-operator (Peasant) Farming Versus Plantations

The small owner-operator farmer engaged in growing coffee and cacao as multiple crops is in a better position to weather low, uneconomic prices than is the single crop grower of coffee. When prices are low, the owner-operator gives attention to other crops, among which are subsistence crops. The coffee and cocoa farms grow up in bush, and the crop rots on the trees. When the prices rise sufficiently, the owner-operator cuts the bush, using his own or employed labor, or both, attends the trees and harvests when the crop is ready. This may not be the best method of cultivation, but it is the only economic method the farmer in Liberia can depend on. This is exactly what the farmers have done in the decline and rise of prices of coffee and cocoa in Liberia from 1958 to 1963. On the other hand some mono-crop plantations of coffee and cocoa went bankrupt when prices dropped.

Some crops for export or for supplying an elaborate processing plant locally, which has a minimum capacity for economical operation, require an organized production and assured supply which only a plantation operation can provide. With a minimum supply assured by a plantation, the balance of the demand can be dependent on small farmers who have been stimulated by the plantation operation and by the assured market which it provides.

Growing oil palm and sugar cane for supplying local processing plants are examples of crops suitable for a plantation operation. Growing pineapples for marketing the fresh fruits is an example of a crop which requires an organized production and marketing system and a dependable plantation operation.

While plantation farming has its place in Liberia it cannot be categorically said that plantation farming is the sole answer for development of agriculture in Liberia. Nor can it be said categorically that development of the small sized owner-operator, multiple crop type of farm is the sole answer. Both have their places. The crop to be grown, the processing required, stability of prices, market outlets, labor input, type of management required, minimum volumes required, dependability of supply, and other factors determine the respective places and needs of each.

There is need for more plantation farming and there is need for improving farming of the owner-operator type which may also be and usually is subsistence farming. Each can help or benefit the other. The large rubber plantations have enabled Liberians to get started in rubber growing. On the other hand, 90 percent of Liberia's coffee is produced on farms of 1 to 3 acres. All of the coffee being processed by the coffee mill comes from these small farms. The largest coffee farm in Liberia is only about 300 acres. There are only a few coffee farms in excess of 25 acres. Nevertheless, the small producers could benefit by learning from a larger, well managed farm in an area such as Voinjama and Zorzor, which would practice the use of fertilizers and insecticides, and use good processing methods.

Almost all cocoa in Liberia is grown on small farms of less than 5 acres. The one sizeable plantation which was started by an American Company (The Liberian Agriculture Company) was a failure. It failed when the prices declined, and the company planted rubber trees on the plantation. However, some agriculturist claim that the plantation was located on soils unsuitable for growing cocoa, which made production uneconomic when prices fell. It is contended that if the plantation had been located in the Eastern (best cocoa growing area) instead of the Central Province, the operation would have been a success. Although this may have been true as far as soils are concerned, it is merely academic speculation as far as practicality and economy are concerned. There were no roads into the Eastern Province at the time the plantation was started in the early 50's. Even after roads reached the area, the haul to port over the roads was 350 miles.

The sugar cane industry in Liberia is composed of small producers, hardly any operation exceeding 5 acres. Nevertheless, sugar cane is an important cash crop to Liberia. However, any significant sugar industry, involving refining or distillation on an industrial scale would require plantation operations. This could stimulate, lead, and assist small producers.

Tobacco is a crop which requires a sizeable farm to afford the economy of experienced and skilled management necessary for good production. To the extent that this is available or can be interested to come to Liberia, the crop should be encouraged for the domestic market.

Rice is a crop which in Liberia favors the small owner-operator type of cultivation. The topography of the land restricts the sizes of level fields suitable for irrigation to small acreage in most areas which is uneconomical for extensive cultivation by heavy equipment. Irrigated paddy cultivation requires labor intensive methods combined with the use of small, light equipment. Heavy equipment cannot operate economically in small, soft paddies. Growing of rice without irrigation on an extensive, mechanized method during the rainy season would be stopped by rains even if sufficient level lowland were found as was clearly demonstrated in the GOL-U.S. former Gbedin project in 1958. In this experience, the damages and loss from flooding and inability to harvest large areas of rice mechanically because of the wet fields were prohibitive.

Because of the above factors and this experience, it has been concluded that plantation growing of rice by a ~~[illegible]~~ single enterprise employing labor would not be feasible.

5. Experienced Management

Lack of trained management is a principal problem which must be delt with in development. Experienced management is needed to plan and manage farming for groups of owner-operators in growing rice if the operation involves a large system of irrigation. As irrigation in a sizeable scheme of several hundreds or thousands of acres and dams and canals which must be planned and conducted as an integrated project, the entire operation must be treated, planned, and operated as one project, even though the individual owner-operators own the land, plant and harvest their own rice, and receive the income from their efforts.

Experienced management for such projects can be provided in a number of ways. It can be furnished by the Government from foreign sources. It can be engaged from foreign sources on a fee basis by the farmers collectively in a cooperative arrangement, or it can be in the form of a partnership between investor-managers and the group of farmers collectively.

6. Surveys

From a long range point of view, any large and significant industry in swamp rice cultivation in Liberia will require irrigation and drainage engineering surveys and planning of the large swamps throughout the country, which are valuable, unutilized resources at present, amounting to an estimated 760,000 acres. After the engineering work, use of heavy equipment for drainage and preparation of the land will ~~[illegible]~~ be necessary. When this is done, the land will be ready to grow a number of crops. This, of course, is what is being tried at Gbedin now.

7. Credit and Investment

Agricultural development in Liberia depends on development of 150,000 or more farmers. They cannot accumulate capital without increasing their productivity. Increasing productivity requires capital investment, which must come from another source than the farmers themselves.

Government and private enterprise are the two sources. In Liberia, because of the many unknown factors and risks, private enterprise does not provide credit. It remains for Government to take the initial risk and pave the way, proving or disproving the feasibility by pilot operations.

Government will have to take the risk in helping the small, peasant farmer with credit. A possible way through farmers' ~~xxx~~ cooperatives has been indicated for channelling credit to farmers from Government credit organizations.

A commercial project of a large operation, such as an oil palm plantation, which can assist small farmers is the ideal combination.

8. ~~Ex~~ Manpower and Productivity

The most important single factor in development of agriculture or industry in Liberia is the development of the manpower. This means increasing the productivity of manpower. This is the scarcest resource in Liberia and is worth the greatest investment. Increasing productivity in agriculture is particularly important because of its low starting point, making almost any other activity or attraction competitive, if available.

Already the manpower for farming (excluding rubber) has been reduced from an estimated 253,000 persons in 1944 to 166,000 in 1954. Forecasts are that rubber and other requirements will reduce this number by another 25,000 persons within the next 5 to 10 years, leaving only a 141,000 labor force for farming with a static population. Obviously, if the ~~xxxx~~ forecasts are reasonably correct, agricultural production (excluding rubber) will decrease without increased productivity. Increased productivity in the industrial sector would decrease requirements there, too, thus releasing some of the 25,000. This is possible among the Liberian rubber producers.

Some ways have been indicated for increasing productivity on a few projects. In the final analysis, the problem must be solved by practical, technical training of manpower. Such costs of training, whether in the industrial or ~~agricultural~~ agricultural sector is a social overhead which must be borne by Government or private enterprise. If private enterprise provided the training, it is considered as part of the capital investment. In some instances Government can assume the cost, as for example at Gbedin, where the Government intends to spend approximately $7,000 per person to train a farmer in the techniques of irrigation agriculture. At LAMCO, the company is spending $20,000 per person to train a person in mechanics and carpentry.

9. Rural Industries

Efficient utilization of manpower is as important as training in productivity. Maximum utilization of the entire family will increase productivity. This has been achieved to a degree at Firestone where swamp rice cultivation became a family vocation among Firestone employees. Here, it served to utilize an excessive accumulation of unemployed dependents.

Industrial planning must coincide with planning agricultural development. The two are inter-dependent, particularly in Liberia. Utilization of rural family labor for industry in an agricultural setting to contribute part time to both industry and agriculture is highly desirable for Liberia. For a stabilized economy, Liberia must achieve a balanced, efficient, distribution and productive use of manpower, in ~~the~~ rural industries and farming.

10. Accessibility of Rural Population and Agricultural Areas

Liberia is not one integrated economy as is envisioned when one speaks of a total population of 1,000,000 people, and an ~~the~~ area of 43,000 square miles.

Liberia is composed of one large and several small, isolated economies that have little relationship, one with the other. The Liberia we normally speak of is Monrovia on the coast, Firestone, the Central Province, Zorzor, Voinjama, Kolahoun, Nimba, and Bomi Hills. The vast coastal areas and much of the interior are still isolated. Pockets of pouplation subsist without any economic ties to the rest of the country, except for Government salaries and taxes. Most of these communities have receeded instead of progressing in recent years. It is estimated that one-fifth to one-fourth of the total population is so isolated.

Accessibility remains a big problem in development. A road program must have priority. A minimum standard and low cost to permit a four-wheeled drive vehicle to pass should be the initial goal. It is estimated that one-half the population still live at least one-half day's walk from a road.

V. Favorable Factors

The most favorable factors have been the tangible achievements in assistance, as pointed out previously, of increased income and a Government organization that is just beginning to perform, with a few conscientious, capable young men.

Another favorable factor is the general advancement of the economy, at least of that portion of Liberia which is integrated. Liberia can move ahead at a faster rate if given technical and financial assistance. There are economic ~~factors~~ forces available here now that did not exist 16 years ago.

Assistance in the future should be more measurable than the past. More means of gathering data is becoming available. Communications are improving. More trained personnel are available.

The people of the Hinterland where roads have touched are changing. Their needs are increasing. They are buying more.

There is hope that the Government may be going through a period of favorable transition in fiscal management which may relieve the chronic budgetary shortages which stop operations.

VI. Unfavorable Factors

Government Personnel and Attitude

The number of trained Liberians in Government, especially those who are dedicated to their jobs, are too few. The lack of a sense of responsibility and purpose is often lacking in may and remains a major problem in the Government operations.

The lack of trained personnel of managerial and directorial caliber, and the lack of professional personnel are key problems in Government, as well as in private industry and farming. The needs are increasing faster than Liberians are being trained.

There is too much concentration of authority in the Chief Executive, particularly on fiscal ~~control~~ controls. This bottle-necks Government operations, slows down payment of wages and salaries and purchases of equipment and supplies. The reluctance to delegate is universal within the Government, although some progress in overcoming this was made in the DAC during 1963.

On the side of Government, there should be greater encouragement to young men through better salaries and benefits, such as a civil service and retirement program, to attract and keep young qualified people.

There is too much politics in the employment and discharge of employees, making it impossible for a Department Secretary to discharge some undesirable personnel, to employ better ones, and give better salaries to those deserving.

The Government is in a tight financial position and will probably continue on for 2 or 3 more years.

VII. Recommendations

Liberia is an agricultural economy, basically. There is plenty of land resources but limited human resources. Development of these human resources in greater productivity in agriculture is the hope of the country in the future.

The Government is trying to do something now, but it still needs help. U.S. assistance in agriculture has paid off, but it has taken many years to see any evidence. If the U.S. has an interest in Liberia, that interest can be effectively served by applying a major effort to help the people develop agriculture.

Efforts should and can be applied on a concentrated basis on identifiable ~~[illegible]~~ projects where results can be measured quickly. Concentration, continutiy, and assignments of a minimum of 3 years are desirable.

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Appendix I

U.S. Contributions in Agriculture From the Beginning of Projects to June 30, 1964

(in thousands of dollars)

	Technicians	Participants	Commodities etc.	Total
Agricultural Experimentation FY 1951-FY 1962 57 man years technicians 28 participants	$548	29	211	788
Agricultural Extension Feb. 1951-June 1964 61 man years technicians 20 participants	977	74	218	1,269
Fresh Water Fisheries 13 man years technicians 2 participants	166	10	49	225
Forestry 33 man years technicians 14 participants	380	39	90	509
Department of Agriculture (Div. Chief, Economics, Marketing, Credit) 8 man years technicians 1 participant	231	6	—	237
Grand total all agriculture	$2,302	158	568	3,028

The above has been grouped by type of work performed rather than by Project numbers, as various combinations were used in different years such as some under RAD, Government Reorganization and Management, etc.

Through June 30, 1962 the figures represent actual expenditures. For FY-1963 and FY-1964 the figures represent obligations, but, will be very close to actual expenditures.

Estimates of U.S. Contribution for

Agricultural Development of

Liberia During Period 1946-1951

There are no records available, but estimates are made on the basis of assistance that was reported in available documents.

Summary of U.S.
Contributions for Agriculture
of Liberia 1946-1964

(in thousands of dollars)

	Number Participants	Man Years Technicians	Cost Technicians	Commodities	Total
*1946-1951		25	$ 375	$ 80	$ 455
1951-1964	158	172	2,302	568	3,028
Total	158	197	$2,677	$648	$3,483

*Assistance was began in 1946 with five agricultural production specialists. It is assumed that this assistance was continued until the agreement made in 1948 was actually implemented in 1951.

Five men for five years = 25 man years @ $15,000/man year = $375,000.

XXXXXXXXXX

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