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INTERNATIONAL ASSISTANCE CORPORATION

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REPORT OF COMPLETED PROJECT

LIBERIA

AID/csd-255, Task Order No. 11
AID/csd-1489, Task Order No. 3

July 25, 1968

SUMMARY

As a result of discussions and negotiations extending over a period of years, Task Order No. 8 under Contract AID/csd-255, was signed by AID/Washington and the Farmers Union International Assistance Corporation (FUIAC) in November 1964.

This contract was later canceled but after consultations in June 1965, between FUIAC, USAID/Liberia and the Government of Liberia (GOL), Task Order No. 11 under Contract AID/csd-255 was signed.

Objectives:

1. To provide technical assistance to the GOL in developing the legislative and institutional framework and operation capability required to increase agricultural productivity utilizing cooperatives and credit mechanisms to the maximum extent practicable.

2. To work with and advise the Department of Agriculture of the GOL, and officials of Agricultural Cooperatives and farmer members.

Staff:

Kenneth Wilhelmi - Cooperative Production Specialist. Assigned to the Department of Agriculture, his general responsibilities were to advise on programs for cooperative members in the application of improved techniques of production.

Burton H. Behrens - Agricultural Cooperative Credit Specialist. Assigned to the Department of Agriculture, his general responsibilities were to work with the Agricultural Credit Corporation or other designated agencies in the development of an adequate supervised credit program for small farmers and agricultural cooperatives.

Herbert R. Parsons - Agricultural Cooperative Management and Training Specialist (Chief of Party). Assigned to the Department of Agriculture, his general responsibilities were to develop farmer and village cooperatives for processing, transporting and marketing farm products, procurement of farm supplies and equipment, provide credit and advice in the development of training programs for cooperative supervisory personnel.

Situation:

It should be born in mind that while the GOL gave indications of interest in the use of the cooperative mechanism, there were in existence at the beginning of this project no viable agricultural cooperatives in the country. In addition, the degree of support by the GOL to the agriculture sector (estimated at about 2% of the national budget) was far too little to have any positive effect in agricultural development.

There being no cooperatives with which to work, little if any planning was in process, each member of the team was required to proceed from scratch as to production, supply and marketing assistance.

With regard to the credit situation, the agricultural credit resources had been completely depleted through inadvertent lending procedures leaving no more than a shell with which to work. Additional credit resources were not forthcoming which made it necessary for the agricultural credit advisor to assist the credit agency in a recovery program prior to any actual implementation of a credit program to farmers.

Progress:

Our team did survey the agricultural situation, past AID and GOL activities and programs; and the potential for cooperative development. A complete examination was made of the organizational structure, policies, procedures, record keeping system, finances, loans and repayment of loans of the Agricultural Credit Corporation. Past efforts in cooperative development and present cooperative laws were examined.

1. A complete program making specific recommendations to projects as outlined in Task Order No. 11 was developed and presented to USAID/Liberia.

2. A program of cooperative services through which small rubber producers could utilize a truck for moving their products to the mills more promptly and economically and with less deterioration in quality, than they were experiencing was proposed.

3. Conferences and discussions on cooperatives, agricultural credit, methods and techniques in crop production, application and use of fertilizer, land use and conservation practices were held throughout Liberia.

4. A program for planting and carrying out 30 one half acre farm demonstration trials of upland rice was developed. Yield data were to be collected and analyzed for both improved and unimproved plots.

5. Lectures were given on soils to students and other interested parties in missions and agricultural institutions.

6. Farmers were given technical assistance in methods of livestock production particularly in swine, cattle and poultry.

7. The cooperative at Gbedin was given assistance in organizational structure, record keeping, methods in processing, storing and marketing members' rice.

8. Two demonstration agricultural cooperatives were organized, one in Voinjama and a second in Tchien. All steps were taken through organization and development planning including facilities, operational procedures, management and fiscal forecasting. Due to the termination of the Task Order, the cooperatives were not taken beyond that point.

9. An act to amend the executive law with respect to the Agricultural Credit Corporation was developed and passed by the Legislators.

A policy to enforce collection of delinquent loans was put into operation. A proposed organizational chart developed and forms for operational procedure printed.

In addition to the above specific activities our team gave assistance in the following areas:

- a. Attended and advised at meetings with rubber producers.
- b. Advised on cooperative hog projects.
- c. Assisted in planning and conducting a national agricultural fair at Buchanan.
- d. Advised Peace Corps representatives on many rural and agricultural matters.
- e. Consulted with many private and government technicians on agricultural development.
- f. Technicians, high level policy people and diplomats visiting and working in Liberia were provided with information relative to various development projects and assisted in travel to many parts of Liberia.

Staff Tenure:

Technician one, Agricultural Production Specialist - from August 1, 1966 to August 31, 1967. UniRoyal was operating an agricultural program in Liberia in cooperation with USAID, needed a specialist with the qualifications of this technician and offered him a post, which was accepted.

Technician two, Agricultural Credit Specialist - from June 13, 1966 to February 1968. Because of the inability of the Liberian Government to enforce a collection policy on delinquent loans, the credit specialist's tour was concluded after 20 months. As a result of the efforts of this specialist, however, collection procedures were put into operation and are proceeding but at a pace which was considered too slow to justify maintaining this technician at the post.

Technician three, Agricultural Cooperative Specialist - from June 13, 1966 to July 15, 1968. The Cooperative Management and Training Specialist completed a two year tour at the post returning to the United States in late June 1968, with assignment for program development through July 15, 1968.

PILOT DEVELOPMENT PROJECTS

In addition to the educational work in basic cooperative concepts, work in development of attitudes, and ideals in democratic principles and processes, and development and distribution of cooperative educational material throughout Liberia; a cooperative of local farmers for production marketing, supply and credit was organized in both the

Voinjama and Tchien areas. Officers were elected, by-laws adapted and articles of incorporation approved by the membership.

In the development and documentation of this program, the AID Mission and the GOL had complete understanding with regard to the contribution each would make in implementing the program.

A plan of land tenure, through which cooperative members would become owners of their particular parcel of land, was agreed upon by local authorities and GOL officials. The plans provided for operation of the complete projects by cooperative members after the land had been cleared, prepared and put into production by the GOL.

Membership in the marketing supply and credit section of the cooperative was open to farmers of the entire areas.

The Superintendent of the Voinjama area was sent to the United States for briefing in our agricultural methods and operations. This official returned to his country with headquarters in Voinjama, enthused and interested in assisting with implementing the program as planned and developed.

USAID commitments consisted of financing through loan and grant fund the costs of erecting a warehouse at Voinjama, equipping the warehouse with milling facilities, dryers, moisture testers, weighing and grading equipment, inventories of fertilizers, small tools, farm machinery, equipment and farm transport. Purchase of a rice mill and dryer for Gbedin, and \$20,000. was appropriated for purchase of milling equipment, inventories of farm supplies and organizational support for the Tchien cooperative.

Some General Land Characteristics of Liberia

Liberia has an area of 43,000 square miles, slightly larger than Tennessee. It is bordered on the east by the Ivory Coast, on the north by Guinea, on the northwest by Sierra Leone and on the southwest by the Atlantic Ocean.

The climate is tropical and there are two distinct seasons--the rainy season from May to November and the dry season which makes up the rest of the year.

Yearly rainfall averages from 150 to 170 inches and often is in excess of 200 inches in different parts of the country.

The most level land is found along the 250 mile coastline. Further inland, the country rises to poorly defined plateaus and valleys.

The groups of soils generally classified as latsaols occupy about 75% of the total of Liberia. The abundant rainfall and reasonably high temperature exert heavy influence on the weathering of parent materials resulting in the development of laterite soils.

Tropical tree crops such as rubber, coffee and palm oil are well suited to the soils and climate of Liberia.

Liberian People in a Changing Way of Life

A knowledge of the Liberian people and their changing way of life is necessary to enable one to understand development problems in implementing projects.

The greater portion of Liberians live in 127 chiefdoms and 372 clans. They are referred to as "tribesmen". There are 26 language groups. These tribesmen are in the process of moving from a subsistence level of hunting and agriculture of life influenced by western culture.

The descendants of a small but important group known as American and "Congo" settlers who founded Liberia in the 19th Century control the central government and call themselves kwi or "civilized" people.

Various phases of western culture practiced by the GOL and the introduction of western institutions by foreign groups are influencing an increasing number of tribesmen in changing their way of life.

The old beliefs in spirits and magic including witchcraft, functions of secret societies and the country devil are closely linked in the average tribesman's mind with all problems of every day life. One of the heritages of this system is a tremendous respect for law and authority on the part of the tribesmen.

To be sure, men in authority in a modern judicial system where such concepts exist, can be expected to create special problems. Liberia is no exception, it has its social, political and economic problems. To cite one example, Liberians are fully aware that the practice of certain forms of graft penetrates the entire fabric of their society. These systems based on supernatural concepts are slowly changing as a new national way of life emerges.

To control the tribal groups, the central government has designed a system of chiefdoms into which the original clan groups have been organized. In this system District Commissioners and County Superintendents, appointed by the president, govern through a chain consistently downward of Paramount Chief, Clan Chiefs, Town Chiefs, and Quarter Chiefs.

This system and the ever encroaching money economy is involving a whole new way of life for the tribal farmer, because all parts of the social cultural systems are tied together and one cannot be changed without effecting the others.

Increasing Production and Improving Farmer Income

Any great increase in national production must come from the indigenous Liberian who in most cases is only producing his requirements for subsistence. Much of the reason for this is lack of incentive. He has not found that through his experience in the past, his surplus production would add to his own material resources (increase his standard of living.)

Obstructions to Incentive

1. Family Customs: A Liberian's obligation to other members of his family never ceases. If a member of the family acquires an income he is expected to provide non-productive members of his family with the necessities of life. (Expenses in connection with a "wake", medical expenses for the country witch doctor, expense of a relative to a mission school or to take in and board student relatives who can then attend high school.)
2. Tribal Obligations: All tribal men must give labor, as called upon, to their chief. There is no escape from this obligation. Wherever he may go within the country, his ties with and obligations remain to the tribe, and in his absence from the tribe, he must arrange to have his duties performed by someone else. These services may consist of clearing of the bush on the chief's farm, clearing of the low bush along the roadway, or construction of a road or bridge. When the individual who is farming tribal lands is required by the chief to perform his tribal duty during the period for land clearing, he must be absent from his own work and will clear proportionately less for his own farm (due to time spent away from his farm plus the drain of his energy.)
3. Increased Tax Rate: Taxes continue to increase each year, but the complicating factor is that the citizen is not educated to the necessity and purpose of taxes. This lack of understanding is severely aggravated by the situation whereby "tax money" is "eaten" so that it does not serve the intended purpose.
4. Lack of Stable and Fair Prices for Products, How Taxes are Raised: Taxes are "assessed" by governmental officials at any level by hut (not by head). The head of the hut must sell something to raise the money unless there is someone in the hut who earns wages. Often the tribal chiefs are called upon by government officials for special assessments to support various functions or projects that may arise during the year. The chief then in turn must go to his people to collect rice or money.

There are check points along the main roads, usually entering or leaving each country, where gates stop the flow of traffic. To get through one must have his tax receipt to pass. Sometimes additional levy is added at this point in the form of money or produce that a farmer may be moving to market.

5. Restriction of Market: The Liberian farmer (up country) is almost completely at the mercy of the Lebanese merchant because of the lack of a transportation infrastructure in the country. There is no established transportation system; no railroads (other than railroads owned by iron ore companies and restricted to their use) exist. There are no navigable rivers; and few motor roads. Taxis and "money buses" are the only public means of transportation and hauling rice or other produce by these means is prohibitive in price. Of the motor roads, only about 170 miles, or approximately 12 - 13% are of asphalt paving and reliably passable all year round. The remainder are frequently impassable during the heavy rainy season of two to three months. Large areas in Liberia are not serviced at all by motor roads

and requires a three to five days walk to reach areas serviced by roads. Where there are no roads or when the roads are impassable, the only way to move the crops is to "head-load" them to a point where they can be sold.

The Liberians themselves do not engage in business like the Lebanese merchants, and, therefore, the Lebanese merchant is the source of supply for consumer goods and the major outlet for production in the country. One additional barrier which often inhibits the remotely situated farmer from taking his goods to the city is his innate fear of going to the city and dealing with strangers.

Being left at the mercy of the Lebanese trader as the primary outlet for his goods, the Liberian farmer suffers a double misfortune in that, requiring credit for his own needs as to consumer goods which are available only through the Lebanese merchant, he becomes debtor to the merchant with his future rice crop as security; but the double edge is that no agreement is made as to the price of the rice.

The Lebanese merchant sets his own price at \$2, \$3, or \$4 per cwt. when the same rice is selling in Monrovia on a wholesale market at \$7 or \$8 per cwt. Added to this factor of loss of control over the price, the farmer also loses the flexibility to negotiate, should other marketing opportunities arise.

Shifting Agriculture:

The present method of production is commonly known as the cut and burn method (or "shifting" agriculture).

In the shifting form of agriculture, the farmers move from one location to another year after year, returning to the same land in a five to seven year cycle. Contrary to the general belief that people change their residence while they are shifting in agriculture, the Liberian farmers continue to live in their village and they walk out to their farms from their permanent residence.

Production is entirely by hand and with crude hand tools. Each year one man is capable of clearing from one to one and a half acres of bush. He and the women pile and burn the brush; the women then, with hand hoes chop in the rice seed. Weeds in this type of rotation do not present much of a problem but whatever weeding is required is done by the women and children.

After the rice begins to head and reaches the dough stage, rice birds swarm in to eat it. At this point it is necessary to establish a bird watch, which is also performed by the women and children. Sometimes, in addition to rice birds, there is considerable damage caused by ground hogs. As a preventative or control to this, it is sometimes necessary to construct low (18" to 2' high) stick or stake fences.

When the rice reaches maturity, women do the harvesting by walking through the field and cutting each ripe head separately. There is considerable difference in the maturity of the rice within the same field;

therefore, harvesting continues for a period as long as two weeks within the same field.

The rice is then stored in a loft of a thatch-roof kitchen where the open fire offers heat for drying and the smoke from the fire kills the bugs which may otherwise infest it. Through a patient but persistent training program under the direction of Chinese technicians (from Taiwan) a pattern of swamp rice cultivation is emerging.

Course of Action:

The GOL is requesting assistance in the development of cooperatives with a view to maximizing efficiency in production, supplying inputs to farmers, marketing farm products, and supplying credit to agricultural producers.

The present climate in the country is favorable to the development of marketing cooperatives, inasmuch as present marketing arrangements are inefficient and exploitive.

The Liberian farmer is receptive to cooperative principles. He has a background for cooperative development as a result of his traditional cultural experiences of working together in his tribal leadership which assists them in building cooperative institutions designed to serve their present needs and purposes.

There is dire need for assistance in cooperative development in the Liberian agricultural production systems. Small farmers must be given an opportunity to participate and become a part of this production system. This will not be accomplished through operation of concessions or large farm operations.

In order to assure that the individual farmer will be able to retain enough of the fruits of his labor beyond a subsistence level, rather than having it drained away by the incentive obstructions previously cited, a marketing system must be provided whereby his efforts are awarded and protected. The most simple and effective way to do this would be to organize and establish a series of marketing cooperatives.

It was planned that cooperatives should be organized at strategic intervals throughout the country where the Liberian farmer may take advantage of the services offered. First emphasis should be placed on the basis of providing a market place where they can bring their rice and get a guaranteed price of \$6.50 per cwt., based on Monrovia grade which is currently selling there wholesale for \$10.50 or more per cwt.

Objectives:

1. To enable the Liberian farmer to achieve the capability of earning an above subsistence livelihood;
2. To make the Liberian farmer a more productive and a more efficient member of society;

3. To make a substantial start in helping Liberia to become self-sufficient in producing its own food; and

4. To assist producers in developing their own marketing and supply institutions.

As a result of farmers becoming self-sufficient in their own community, there will be a direct and indirect influence on the economy of the community. The goal was to enable participating farmers of the Production Cooperative to earn a net income of \$1,000. a year. According to this plan, this goal would be nearly achieved in the year 1971, and more than doubled by the year 1975.

Another integral aspect is that the pilot project can give many answers to existing problems and on the basis of these answers, changes can be made and thus adaptations for the application to all areas of Liberia suitable for rice and other food crop production. The pilot projects can be the break throughs from totally inefficient and low productive ancient hand labor methods to modern mechanization.

Production, Marketing, Processing and Supply Cooperatives:

The following shows the inputs of a cooperative which includes marketing, processing and supplying production materials for the Voinjama and Tchien areas where the ground work has been laid with the people of the area. The concept of the cooperative mechanism has been presented to the indigenous Liberian farmer up through tribal chiefs, district commissioners, country superintendents (country governors) and to the policy level of the GOL.

PRODUCTION COOPERATIVE PROPOSAL

It is essential that the formation of Production Cooperatives be done simultaneously with the formation of the Marketing and Supply Cooperatives. The Production Cooperatives would introduce modern machines and the latest technical innovations to Liberian agriculture.

Two concessions, UniRoyal and Firestone, have led the way, not as a cooperative movement but, by nearly 100% mechanization of extensive acreages of upland rice in 1967, with varied results. Final evaluations have not yet been calculated or at least not yet released. UniRoyal is bound by an AID contract to make its findings available to the public. Both concessions are morally obligated to make all data public so that other producers and the nation may benefit from their findings.

1967 results were not as favorable as had been expected in that the yields were low and production costs were not met. As in any new venture many unforeseen problems arose, however, some of the problems will be surmountable and it is expected that income will equal costs in 1968 on large scale (100 to 1,000 acres) rice production. It must be remembered however, that where experimentation takes place there are risks and some attempts will fail which will be costly and when the failures are averaged with the successes, the final results may be good but in the red financially.

By using the successful segments of UniRoyal's and Firestone's production a vertically integrated plan can be assembled for upland rice production. The proposal of February 9, 1968, not only included upland production but also a movement toward the more durable and productive alluvial soil deposits in the valley areas.

There has been some mechanization of these soil types this past year on the Potoloma Corporation site with good results. The concept was to combine the best of the two present systems of rice production in Liberia by using the Gbedin type soils with mechanization. With proper field layout the plan can be done on an extensive scale.

Detail of Production and Projections with Management and Technical Assistance:

The possibility of a successful and profitable future for a Rice Zone Project, involving a programmed expansion of production units was detailed on February 9, 1968, with supporting data.

Productions were based on the following essential factors:

- a. Systematic land clearing operations with maximum utilization of equipment provided by the GOL.
- b. Direct management of the land clearing program and the full application of cropping to cleared land, both alluvial and upland acreages.
- c. Technical assistance through cooperative management of the marketing and processing unit.
- d. Implementation in full of the capital inputs in machinery and operating equipment.

It should be noted that through the first two years a moratorium is needed on the capital inputs, but following 1970 the amortization process can be anticipated without danger to the success of the project.

The objectives of this program are:

- a. To develop a group of successful farmers in the area with improving family incomes through 1975.
- b. Demonstration of the capital feasibility of rice production under adequate supervision and management with phase out of such outside assistance in from three to five years.
- c. Development of a viable private enterprise in agriculture.

The function of the GOL in the initial phases of land clearing and the technical assistance through direct management in the development and training period were documented in detail.

Land Use:

Both upland and swamp land would be used in this project. The number of acre units were estimated. (An "acre unit" used herein is on the basis of one (1) unit per acre on the upland and two (2) units per acre on the swamp land. This is in keeping with the number of crops which each type of land is capable of supporting).

In the year 1970, it would become necessary to rotate crops on the upland so only one-half of these production units would be planted to rice. The other one-half would be planted to a secondary crop in rotation and for income purposes contribute one-half the amount of income as the rice crop. This is a conservative approach because many rotation crops may equal or even exceed the rice income for a limited number of acres. Also the production costs would be cut to one-half for proper balance on this acreage.

Land is available in many parts of Liberia to support this program. There are many smaller swamps and some large swamps. Some upland has a good topography and is of a type which, under proper management, would be adapted to an intensified crop plan.

The greatest efficiency in equipment usage would be on farms contiguous to one another doing the same thing at the same time or immediately upon availability of equipment. Thus, the development of the larger swamps would be stressed. This may cause some movement of families in the future should they choose to make their permanent homes next to their farms. It would not create much of a problem in the beginning because they would follow the present social pattern of living in villages and moving back and forth between their village and their rice farms. While at the farm they would live in temporary structures.

If the smaller swamps are near enough (5 mile radius) to the center of an operation and are readily accessible, they may be included in the project as time and machinery become available.

No land should be developed until such time as title is cleared on each tract. This should be simple on government owned lands but may prove more difficult on smaller outlying tracts. In the case of government lands, a simplified system of lots and permanent markers should be used for description and identification.

On land owned by the government and operated by one of the production cooperative members, an option to buy should be granted after the producer has proven his ability to handle his land in a satisfactory manner according to the standards of the cooperative. According to the flow sheet*, the ability to apply payment on land purchases should begin at the end of the fifth year.

During this option period, members should be charged to low rental, which would be equal to or slightly more than the annual land purchase payment, for the use of the land. If the option to purchase is not taken up at the end of the 7th year, the land may be put up for sale to qualified prospects who might be interested in purchasing said lands.

Land payments could go to a designated development fund which would be the property of the GOL but could be managed by the co-op according to policy for future land development in the area. When the optimum size of this cooperative had been reached, these funds may be used for similar projects in adjacent or other areas or for other agricultural development. It should never be allowed to be diverted from agriculture development in Liberia.

Personnel:

In addition, the GOL should furnish technical assistance personnel. Most of these probably can be selected from the personnel roster of the Department of Agriculture.

The Agronomist and Extension Agent should be of such caliber that they can serve as counterparts to the USAID farm manager and eventually take over the management should the co-op directors choose to hire them to do so.

At the beginning of the 5th year, a payroll can be added for personnel to manage and operate the Production Cooperative and still have a good per-family income. The payroll funds would begin to be accumulated from the 4th year income.

Also at the beginning of the 5th year the farm manager should be able to turn the management over to the Liberia staff. However, care must be taken here to be certain the staff is sufficiently trained and able to function to the fullest extent. Possibly just minor supervision will be necessary at this stage and require the part-time services of a USAID technician.

Cost of farm manager project was estimated at 33,000 in 1968; 34,000 in 1969; and 36,000 in 1970. Assistance of this type should be reviewed in 1970 in view of the self-sufficiently objectives for management in 1971 and forward.

Machinery:

The machinery inventory should be fully adequate to mechanize to the greatest extent possible both upland and swamp rice in Liberia.

The cost as indicated in the report was pro-rated to each production year according to a straight line depreciation.

Once committed to the project, none of the GOL or USAID supplied equipment should be taken from the assigned area and should be under the direction of the farm manager. The same policy must apply to any equipment subsequently procured by this cooperative. There is one exception--the D-8 catapiller is needed only part time to clear the projected acreage each year. The D-8 should be on the site prior to the land clearing season each year so that it can be readied and then must not leave the site until all designated clearing has been completed.

The farmer will, of necessity, be subsidized the first two years or until such time when there is sufficient income to cover the cost of operation and still have a fair income upon which to live. This

subsidy would be in the form of not having to pay for the use of the equipment, land clearing and personnel. The cost of fuel oil will be charged in accordance with the amount of work the machine does on the individual's farm.

As income increases the farmer will be charged for the use of the machines in accordance with the work performed per individual farm. Payment for the equipment used will begin on the third year. At this time the project will be self-sufficient except for personnel and land development. After the third year or 1970, the production branch of the co-op will be able to buy all of its replacement machines and repairs. Repairs and maintenance will also be pro-rated according to use. All of the charges will be debited to the members account in the co-op and will be deducted from his income from rice and other commodities which will be eligible to participate in the use of the equipment. All crops produced where any part of this equipment has been used must be marketed through the cooperative.

As time progresses and experience is gained, it may be necessary to revise some of the depreciation schedules. Also the machinery inventory may be altered to meet the needs of the project (see February 9, 1968 report).

CAPITAL FLOW
PRODUCTION COOPERATIVE

	1968		1969		1970	
	USAID	GOL	USAID	GOL	USAID	GOL
Machine Purchases	15,350		11,800			
Machine Op. Costs	1,783		1,995			
Land Clearing	3,000					
Costs			3,000		3,000	
Fuel, Oil, Grease & Repair						
TDY Soil Conservationist						
Water Control Engineer						
FUIAC Farm Manager	33,000		34,000		36,000	
Personnel		12,000		12,000		14,000
Total	<u>\$53,133</u>	<u>\$12,000</u>	<u>\$50,795</u>	<u>\$12,000</u>	<u>\$39,000</u>	<u>\$14,000</u>

The totals shown include USAID Management technician. USAID will not be called upon for inputs other than possible technician assistance after 1970.

As stated in the February 9, 1968 proposal, most of the GOL personnel are on the payroll now and would not cause any added burden to their budget.

Recommendations:

1. The immediate provision of a farmer-manager under a technical assistance arrangement to the Voinjama production project to oversee the land clearing and land preparation program, with responsibility to give direct management to the rice production units;
2. Continuation for two years of technical assistance to the marketing processing cooperative in the form of a cooperative manager; and
3. GOL rice purchase program stabilizing the price of rough rice.
4. Encourage UniRoyal and the Agricultural Experiment Station at Swaukoko to continue research in rice production with emphasis placed on the development of varieties which have the following qualities for mechanization:
 - a. High yielding.
 - b. Responsive to fertilizers.
 - c. Short stemmed straw to reduce lodging hazard.
 - d. Even maturity for mechanized harvesting.
 - e. Disease resistant.
 - f. Insect resistant.
 - g. Photo sensitive to limited available sunlight hours and low light intensity.
 - h. Adapted to moisture conditions.
 - i. Adapted to both long and short growing seasons.

A second variety needs to be developed for the unmechanized small farmer that has the same qualities as the first except that it needs to be a more hardy plant relative to insect damage because pesticides will not be used. It need not be responsive to fertilizers because these will not be used, tall stem (about waist high staminate) for hand harvest.

Modular Plan:

The February 9, 1968 proposal was a modular plan that may be implemented as an independent operation and repeated as needed to meet the demands of the community where it is being used. Repeated in this sense would be on a horizontal integration with very little additional vertical structure needed. In fact, some of the management of the original operation can be spread over a multiple plan. A multiple plan using the modular units would depend upon the demand or size of the program desired, being limited to the land, labor, capital and management resources available.

At the present time capital and management resources are the limiting factors. Capital inputs in the form of machinery for the production cooperative are recommended to be shared by the GOL and USAID. Other capital inputs to finance the marketing and supply cooperative will have to come from outside sources in order to get it off to a start.

Adaptions to Other Countries:

This basic plan may be used for other countries with changes being made to show:

- a. Who will bear the cost of the machinery and supplies.
- b. Cost prices which will differ from country to country. These costs will have to be amortized and carried through the table to reflect yearly figures;
- c. Machinery lines should be selected that are best represented in the country so that spare parts and dependable service is readily available when needed;
- d. How this machinery inventory can be applied to other type crops desired or adopted to other countries with slight variations or minor substitutions.
- e. That personnel costs will also be different in other countries according to the local and governmental pay scales; and
- f. Different commodity prices.

All of these differences can be put into the flow sheets and carried through in the same manner as the example. New totals, of course, will result.

Conclusion:

The production program (Rice Zone - Voinjama) is at a standstill. Organizational work for both the production units and the involvement of producers was underway under this Task Order. Continuation of this cooperative effort with the GOL is now up to the USAID Mission in Liberia.

The cooperative marketing and supply entity was organized involving the nucleus of producers in the project. Success was and is dependent upon follow through of storage and handling facility and continued technical assistance.

A strong beginning was made under this project to create a pilot experience utilizing the cooperative mechanism which would be applicable to other production zones. Demonstration by analysis indicated that the residual effect would be improved producer income and the beginning of a stabilized market process more favorable to the producer.

Unfortunately the project has been terminated in mid-stream. No projections are now possible.