



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

COMPONENTS OF AN OVERALL
DEVELOPMENT POLICY FOR LIBERIAN AGRICULTURE

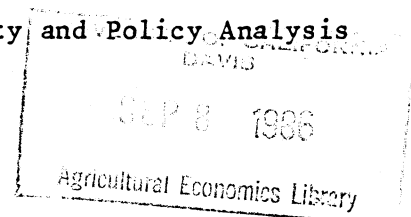
by
Luther Tweeten*

Introduction

This paper contains potential components of an overall development policy for Liberian agriculture. The suggestions are intended to be a foundation for discussion and not final or precise answers to be accepted without scrutiny. They are intended to be sound economically, but need input from a wide range of individuals with an understanding of agriculture and the social, economic and political conditions of Liberia. It is intended that this paper be a springboard for dialogue at the workshop-seminar.

Two major sources of Liberian national income and export earnings, iron ore and high-grade timber, are expected to be severely depleted by the year 2000. As this depletion occurs in the future, it will generate economic stress on the Liberian economy. Currently the export sector of the Liberian economy is under stress due to the value of the dollar in international exchange. A strong dollar constitutes a "tax" on exports and diminishes export opportunities in industries such as rubber in which Liberia has a comparative advantage. Meanwhile, population continues to grow at least 3 percent annually and will double in 25 years if current trends continue.

*Regents Professor, Oklahoma State University and Policy Analysis Project.



1986
Liberian Agriculture

Agriculture is the most important industry to the future of Liberia. Productivity and income in agriculture must progress for the Liberian economy to progress particularly given the bleak outlook for other sectors as noted above. On average, four out of every five people employed in Liberia are in agriculture.¹ Agriculture directly accounts for about one-third of Gross Domestic Product, although it accounts for perhaps double this share if service and other industries supported by agriculture are accounted for. A little over one-tenth of the employment in agriculture is in the monetized, commercial sector which accounts for 44 percent of the agricultural output. The remaining 56 percent of agricultural output is produced by the 90 percent of total persons employed in agriculture who are in traditional agriculture. Most of those in traditional agriculture practice slash-and-burn, shifting cultivation largely for family subsistence. Their staple is rice.

The concessional or "enclave" economy is comprised largely of foreign-owned enterprises engaged in rubber and timber extraction and dominates the monetized, commercial agriculture. This sector has relatively high productivity. It needs minimal government assistance and services. The concessions have benefited from fairly low taxes and considerable freedom for profit repatriation. Concessions have in turn provided linkages to the Liberian economy, especially in generating foreign earnings -- much of which is received as payrolls by Liberian workers. These concessions now face stiff competition from foreign producers because of the high value of the dollar. The Liberian government will need to avoid measures that increase costs and in other ways diminish comparative

¹See Ministry of Planning and Economic Affairs, Second Four-Year National Socio-Economic Plan, 1980.

advantage for concessions at a time when the dollar is unusually strong and export markets are weak.

In summary, the priority concern for the Government of Liberia (GOL) and for the Ministry of Agriculture (MOA) must be to increase the productivity of the noncommercial sector of Liberian agriculture. Future economic and social progress of Liberia depends on success in that effort because the subsistence sector accounts for a large proportion of the people and resources of the nation. The commitment by GOL and MOA to agriculture, and especially smallholder agriculture, is both an opportunity and a challenge. Although agriculture offers the greatest promise for increasing future productivity and income in Liberia, that promise will not be realized unless public and private resources devoted to agriculture are used more efficiently than in the past. Unless agricultural policies are changed, Liberia is likely to experience a declining standard of living by the year 2000 and beyond.

Creating a Climate for Growth in Agriculture

Agriculture does not develop in isolation. It requires a facilitative economic environment. Individuals and firms need the market price system or the public sector to turn pursuit of self-interest into pursuit of the public interest. Managerial and administrative talent to run public agencies is very scarce in Liberia. It follows that a wise development strategy is to let the market guide and conduct economic activity to the extent possible. Public agencies and funds can be reserved to perform only vital activities that the market performs very poorly or not at all.

Before turning to the role of the public sector directly serving agriculture, a short list is provided of activities indirectly related to

agriculture but essential for the development of agriculture. The public sector plays a key role in each of the following:

(1) Basic education. Schooling in literacy and other basic skills has a high economic payoff in agriculture and other occupations.

(2) Primary health care. Sanitary water systems, immunization against diseases and special maternal and child nutrition programs can make people healthier and more productive. Family planning can slow population growth to place less strain on available land and other resources.

(3) Infrastructure. Significant advances in agriculture require low-cost transportation which in turn permits farmers to sell their output at profitable prices for purchase of improved inputs. Subsistence agriculture gives way to commercial agriculture and a higher standard of living with improved roads and bridges. In many areas the critical need is to maintain existing structures before investing in new structures.

(4) Efficient government. Markets work best and investment flourishes in an environment of political stability and administrative efficiency. A stable government avoiding "crises" in the form of excessive expansion of money supply or large fiscal deficits, and encouraging open domestic and foreign trade generates private investment, economic growth and general prosperity.

Agricultural Development

A number of circumstances that influence appropriate policy for agriculture are discussed below. The person/land ratio in Liberia is one of the most favorable in Africa. Rainfall is plentiful and fairly

consistent from year to year. More than 95 percent of Liberian farms and food production is on upland soils. However, soils are fragile and quickly lose fertility and structure when exposed to sun and rain.

Because of fragile soils and weed and insect problems, continuous annual cropping is not now economically or ecologically feasible. New crop varieties such as LAC 23 increase yields but not by the quantum amount necessary for a breakthrough to sustained economic growth.

No known technology permits continuous annual cropping of upland laterite soils at acceptable costs for inputs. Large-scale clearing of land by bulldozers followed by attempts at continuous annual cropping have done serious damage to soils that will take decades, perhaps centuries, to reverse.

A small portion of Liberia's land area is lowland, mostly scattered swamps and narrow valleys. Although swamp rice yields are higher than cropland rice yields and shifting rotation need not be practiced, still the potential for increased national rice production is limited both absolutely and by better alternatives such as tree crops. Most farmers producing swamp rice diversify by also producing upland rice, thus making fuller use of labor and gaining greater security of output. Because of small and isolated occurrence of swamps, and low cost of labor relative to machinery, most swamp rice production as well as upland rice production is not suited for mechanization.

Because of high cost of capital relative to labor and problems with animal draft power, hand methods of production are emphasized. Output per worker is low. Animal draft power is not used, in part because of trypanosomiasis. The same "trypan" problem also precludes utilization of potentially abundant forage to produce livestock for dairy and red meat production.

Labor is typically the most limiting resource in crop production although land increasingly will become a constraint. Efforts to mechanize crop production even with simple technologies such as replacing the knife with the sickle in harvesting rice have met with only limited success. Land-intensive enterprises will be favored as the labor-land ratio increases. Generally, economic incentives will encourage tree crops over rice as land becomes more scarce.

Large scale farms which account for a small portion of Liberia's farms are mostly in tree crops. Most were financed by development capital from nonfarm (sometimes foreign) sources, and most of the economies of size are gained through marketing and processing in large volume and in improved production management rather than through mechanization.

Input markets are not well developed, mainly because commercial fertilizers, pesticides and other purchased inputs are only marginally profitable. While at some point the Government might be economically justified in subsidizing fertilizer and pesticides for a limited period to induce quick adoption of highly profitable and productive inputs, that point of profitability has not been reached for Liberia. However, financial assistance by GOL to encourage planting of improved rice varieties and improved seedlings of coffee, cocoa, rubber and palm may be justified on a selective basis carefully planned and monitored to speed technological change and productivity. It is especially important to learn from special agricultural and rural development projects which have experimented with alternative ways to expand productivity.

Diversification is important because no one crop is likely to be consistently most profitable or suited for all soils and resource conditions. Excessive expansion of coffee production not only would bring

production in excess of quotas but also would make the economy sensitive to fluctuation in world coffee prices. Export quotas, changing market conditions and differing suitability of soils to tree crops require planning and adjustments to new circumstances. Public agencies such as MOA can help producers make better decisions regarding choices of enterprises, practices and marketing.

For tree crops to have a favorable payoff to individual investors, rights to output from investments must be assured. As such, tenure and property right arrangements will need to be examined and revised if necessary to create a favorable investment climate.

Agricultural Research

The highest priority for Liberian agriculture is to strengthen agricultural research to raise farm productivity, output and income. Specific priority research needs include:

- (a) Development and/or adaptation of improved rice varieties.
- (b) Development and/or adaptation of improved tree crop varieties.
- (c) Development and/or adaptation of animal breeds resistant to "trypan" or immunization of livestock to the trypan organism.
- (d) Development of low-cost labor saving technology for production of rice and tree crops.

Some areas of Liberia are under sufficient population pressure so that bush rotations are being shortened with attendant reduction in yields. Technologies are needed to raise productivity, but large-scale land clearing for continuous cultivation, use of commercial fertilizers and pesticides, and mechanization are not economically or ecologically feasible at this time.

For agricultural development in Liberia to proceed, the large mass of subsistence farm families must be involved. They must be not only a major source but a beneficiary of economic progress. The involvement requires increased productivity per person.

Greater productivity comes about from human and material capital formation through savings and investment in high-payoff activities. Lack of highly productive, high-payoff, new varieties and other technologies is a serious impediment to progress of agriculture in Liberia. Agricultural research has been found to be the highest payoff investment possible in many countries. Several years are required for research to go from inception to implementation. A successful agricultural research program requires continuity in the form of sustained commitment to excellence -- with adequate salaries to attract and hold the very best minds of the country. Support facilities must be adequate to provide a working environment conducive to attracting and holding able scientists.

Although Liberia does not have a comparative advantage in rice production, research and extension must continue to improve yields and efficiency of rice production, in part for food security and in part to free farm labor and other resources to produce higher-value tree crops. However, an increasing share of research and extension resources needs to focus on improving production and marketing of tree crops. Such policy builds on comparative advantage to increase income of producers and the country as a whole. Such emphasis is also consistent with an environmentally sound, sustainable agriculture in the long run.

Extension

A central function of the MOA is to organize and operate an Extension Service supporting the development needs of agriculture at all levels but

especially at the producer level. Research is of no value unless improved technology, practices and inputs are utilized on farms. That requires a strong extension program. (Of course, extension will have little value unless it has something worthwhile to extend, hence research and extension cannot be separated.) The principal immediate need in Liberia appears not to be for additional extension personnel but for upgrading expertise and effectiveness of existing personnel. That requires additional training, transportation and communication. Extension also must have adequate and continuous funding for greatest effectiveness. Personnel, as in research, must be selected and promoted based on performance. The administrative environment must be facilitative.

Several clientele are served by the Extension Service.

(1) Subsistence farmers. Extension workers dispersed throughout the Districts work with farmers as individuals and groups. Workers must be trained to deal with problems relating to crops and livestock as well as with problems of support services and institutions. Workers need to be trained to provide motivation as well as technical assistance. Field extension workers must be supported and backed up by technical personnel at County headquarters and by more highly trained technicians at the National level.

(2) Beginning and innovating farmers. Many progressive farmers will work directly with County extension personnel. Because these farmers are opinion leaders and serve as demonstration units for subsistence farmers, success in improving productivity by innovating farmers through adaptation of improved inputs, management and marketing practices is important for the benefit of all farmers. Innovating farmers can serve not only as outlets for but also as sources of information for District and other extension personnel.

(3) Commercial farmers. Commercial farmers are both an outlet for and source of technical, managerial and marketing information for extension personnel. Commercial farmers need not to be provided with inputs on concessional terms at public expense, however.

A continuing program of short courses and other educational efforts is needed to ensure that extension personnel are up-to-date. As technological, managerial and marketing aspects of agricultural and rural development special projects are phased out, lessons learned from success and failures should be absorbed and utilized by the Extension Service.

Summary and Concluding Observations

The following points summarize several findings of importance to an agricultural policy for Liberia. These observations come from the text above and from other papers in this workshop-seminar series. At this stage, the observation should be viewed as discussion items rather than as final components of an agricultural policy.

(1) Liberia has a comparative advantage in tree crop production. Agricultural extension, research and education need to build on this comparative advantage with strong programs to assist in production and marketing. Special programs can be critical for farmers in the years between tree planting and bearing. Also tenure arrangements are especially important for investment in trees.

(2) Tree crop products need to be marketed as efficiently as possible. Marketing efficiency gains should be passed to producers. Incentives to tree crop production should not be reduced by "taxing" tree crop exports to subsidize LPMC rice or other operations.

(3) Research and extension programs to improve rice production efficiency are important and will benefit producers directly and also indirectly by freeing resources needed for subsistence rice to produce other commodities paying higher returns. Rice will continue to be produced by farmers for food security even though other crops have higher payoff for cash sales.

(4) Meeting all domestic rice needs from domestic rice production seems out of the question for the foreseeable future. Self-sufficiency in rice needs to be interpreted as security in rice made possible by higher income and reserves of cash and stocks made possible by producing commodities offering the highest returns. Countries with adequate per capita incomes suffer no shortages of food, thus one of the most effective means to promote food security is to promote overall economic development. In Liberia that means emphasis on economic development of agriculture.

(5) To provide continuity in an LPMC program to market country rice, it is proposed that the support price for country rice be reduced to a sustainable level. Another option is for LPMC to restrict in-country activity to milling and storing rice on a custom fee basis. The savings on country rice programs could be used to maintain a stabilization fund, promote and market tree crop production and provide better infrastructure as noted above. Whatever options are pursued, decisions need to be based on a sound market data base and data system -- a system now in serious disarray and deserving of more support.

(6) A variable levy averaging perhaps 3-4 cents per pound appears to be appropriate on all imported commercial rice. This levy can be used to (a) provide modest income transfers from urban consumers to

producers, (b) provide some price incentives to producers and to reduce rice price variation; and (c) compensate temporarily for an unusually strong dollar. The levy will help to stabilize domestic consumer prices by raising the levy when world prices fall and lowering the levy when world prices rise. If world prices exceed domestic prices so that a rice subsidy is required, the domestic rice price should be raised perhaps 1 cent per pound quarterly until the subsidy is eliminated. This would avoid large price adjustment which are politically destabilizing.

(7) The variable levy should be used to provide an insurance stabilization fund to purchase rice abroad if domestic food supplies run short. The stabilization fund should be allowed to earn interest when not used to stabilize domestic rice supplies and prices. A stabilization fund of \$20 million appears adequate to meet unexpected export price rises or domestic production shortfalls. Once that level of reserves is reached, additional levies on rice imports can be used for other high-priority purposes.

(8) The PL 480 rice program should be utilized to the extent possible. Counterpart funds can provide decisive support for agricultural extension, research and other high-payoff activities.

(9) Commercial imports must not be allowed to erode sales of PL 480 stocks or result in excess accumulation and spoilage of PL 480 stocks. A special effort is required to regularize a policy coordinating commercial and LPMC sales so as to maintain consumer prices but without commercial imports driving out LPMC sales.

(10) Liberian producers do not have available to them a set of technologically improved crop production alternatives providing large

payoffs relative to high cost of resources. As such, a very high priority must be placed on research to develop or adapt from other countries high yielding crop varieties suitable for application to Liberia. Of course, extension efforts are essential to disseminate improved varieties and practices after they are developed or adapted to Liberian conditions. LAC 23 rice is an exception to this somewhat gloomy appraisal. Unless even better varieties of rice and other crops (including tree crops), labor saving technologies and other advances from science and technology are forthcoming as part of a continuing effort in the future, progress in Liberian agricultural development will be slow indeed.

(11) As noted earlier, economic progress requires investments in high-payoff activities. Some of the funds for investment will come from grants and loans from abroad. Some of the high-payoff technologies will also come from abroad. Liberia needs to maintain a strong capability to adapt to local conditions technologies developed elsewhere. Liberia also can take leadership in an aggressive regional research program supported by Western African nations along with donor developed countries and private foundations to support basic research. More such basic research is vital to West African agricultural development but no one country can afford such a program. The WARDA effort is useful but is not adequate for the massive challenge.

(12) A serious missing link in Liberian development has been lack of an effective institutional framework to invest local savings in agriculture. A special effort is needed to determine how local savings can be mobilized (for example building from the concept of susus) and channeled to high-payoff investments of benefit to savers and the nation as a whole.