AIRGRAM

DEPARTMENT OF STATE

Proj. No 6200749 (2)

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FROM - LAGOS

SUBJECT - Non-Capital Project Paper (PROP)
Rubber Development Project

REFERENCE -

COUNTRY: Nigeria - Project No. 620-11-110-749

SUBMISSION DATE: September 1969 - Original x Rev. No. ____

PROJECT TITLE: Rubber Development

U.S. Obligation Span: FY 64 through FY 74

Gross life-of-project financial requirements:

U.S. dollars:	$1,471,000
U.S. owned local currency:	0
Cooperating country cash contribution	$1,499,000
Other donor	0
Totals -	$2,970,000

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PROJECT 749 - RUBBER DEVELOPMENT

SUMMARY

Natural rubber production, using modern techniques and high-yielding plant material, is the most profitable use for much of the rainforest area of southern Nigeria. Climate and soil are most ideal for rubber cultivation on over one and a quarter million acres, most of which is presently under-utilized, employing directly or indirectly, an estimated 50 percent of the working age population. It is also a major cash crop in certain areas of the Western and three eastern states.

In order to stimulate an increase in the quantity, quality and value of rubber production and thus take advantage of the favorable physical environment, Nigerian officials, with USAID support, inaugurated a rubber development program which was designed to develop plant materials, cultural practices and improved tapping, harvesting and processing methods that will yield the highest economic return under Nigerian conditions. USAID support for the institution charged with carrying out the research program began in 1961. Both materials and technical research advisors were supplied to physically establish the facility and initiate the research program. Today, a well functioning facility is beginning to produce research results and is beginning to repay the investment in it.

Nigerian interest, particularly in the Midwest State, has also grown as the research facility has developed. Rubber extension activities were increasingly emphasized by the Extension Service. In 1967, recognizing that natural rubber cultivation is the main source of agricultural income in the State, the Midwest State Ministry of Agriculture and Natural Resources (MANR) stimulated the establishment of a Rubber Development Board (advisory) to encourage rubber development within the state. In January 1969, partially as a result of the sharp drop in rubber production from its high in 1966, the Midwest MANR formed a Rubber Branch within the Ministry charged with coordinating and administering all rubber development activities, including extension.

Due to these positive developments since the inception of the project, and taking into consideration the CSNRD recommendation that USAID should focus more of its attention on export crops, USAID in 1969 expanded the scope of its assistance to the Rubber Development Project by increasing the number of personnel and providing advisors in new technical specialities. AID assistance is now on-going or projected in several phases of rubber production from research through marketing where bottlenecks occur.

On board are rubber research and extension advisors with an agricultural economist (marketing) and agricultural information specialist programmed for the project. Also scheduled are a limited amount of additional commodities and a number of new participants.

The long-run objective of the development program is an increase in rubber exports to about 600,000 tons annually. By USAID phaseout in 1974, when Nigerian personnel will be fully capable of maintaining and expanding a progressive rubber program, the target is a doubling of exports from the 1966 high of 64,000 tons to 125,000 tons (1968 production = 46,000 tons).

Nigerian support for rubber development and the project is good as evidenced by the actions reported above and the personnel and financial support given. In 1967/68 the GON monetary contribution was quadrupled and both senior and junior staff increased. With the establishment of the rubber branch, staff assigned to rubber was again increased. Recently the problem of low quality rubber was the subject of a Midwestern State edict which outlined measures that will be taken to stop the production of inferior grades. It is hoped that in the future a small tax will be levied on rubber exported with the funds allocated to the Rubber Branch of the Ministry for rubber development activities. If as little as 1/8 pence per pound was allocated, a development planning program could be funded by the industry intself and the program would not be predicated on availability of government funds.

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NONCAPITAL PROJECT FUNDING (OBLIGATIONS IN $000)

Table 1
Page 1 of 2
COUNTRY: Nigeria Project Title: Rubber Development

PROP DATE: Sept. 1969
Original X
Rev. No.
Project No. 749

Fiscal Years	AP	L/G	Total	Cont 1/	Personnel Serv. AID	Personnel Serv. Prog	Personnel Serv. CONT	Participants U.S. Agencies	Participants CONT	Commodities Dir U.S. Ag	Commodities CONT	Other Costs Dir US Ag	Other Costs CON
Prior through Act. FY 69			538	37	278	9		46		124		44	37
Oper. FY 70			202		106	14		33		37		12	
Bung. FY 71			262		173	43		18		7		21	
B + 1 FY 72			212		171			21		7		13	
B + 2 FY 73			131		111			5		5		10	
B + 3 FY 74			126		111					5		10	
All Subs.													
Total Life			1,471	37	950	66		123		185		110	37

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Table 1
Page 2 of 2 Exchg rate $1= .3571428 Project No. 749

	AID-controlled Local Currency U.S.	AID-controlled Local Currency Country-owned	Other Cash Contribution Cooperating Country ($000)	Other Donor Funds ($ Equiv.)	Food for Freedom Commodities Metric Tons (000)	Food for Freedom Commodities CCC Value & Freight ($000)	Food for Freedom Commodities World Market Price ($000)
Prior through Act. FY 69			563				
Oper. FY 70			188				
Budg. FY 71			187				
B + 1 FY 72			187				
B + 2 FY 73			187				
B + 3 FY 74			187				
All Subs.							
Total Life			1,499				

Setting or environment

There are an estimated 500,000 acres of rubber in Nigeria with smallholders owning about 95 percent of the acreage and accounting for 86 percent of production. The major producing areas are located in the Midwest State. In 1966, 64,000 tons of rubber valued at ₦11,411,000 were exported, placing this crop in sixth position amongst Nigeria's foreign exchange earners. Due to internal civil disturbances natural rubber production in 1967 was about 48,000 tons. Nevertheless rubber production continues to be a major source of income and the principal agricultural occupation in the Midwest State, as well as providing employment to additional large numbers of people in the processing and marketing stages. It is also of considerable and growing importance in the higher rainfall areas of the Western and the three eastern states.

However, the Nigerian rubber growing industry is confronted with two general problems which must be overcome by effective research and extension efforts, as well as increased producer incentives if Nigeria is to maintain its place in the natural rubber industry and to meet its goals of increasing agricultural income outlined in the development plan. The first of these problems is low productivity on a man-day and a per acre basis. The second problem is the high proportion of low quality rubber being produced and marketed. These problems are interrelated. Low productivity is related both to lack of knowledge of improved cultural practices and also to low returns per unit of rubber sold. Low returns are both a reason for and a result of adulteration of rubber "lumps", the major reason why a high proportion of Nigerian rubber is of low quality.

The two general problems are further complicated by the organization of processing facilities in the country. The number of processing facilities has long been in excess of the number required to process for export all rubber produced in Nigeria. In 1965 there were some 18 crepe factories in operation; their processing capacity was about 90,000 tons per year. However, crepe rubber exports in that year were only some 37,500 tons. This situation has created considerable competition for raw materials, but rather than creating a price increase, it encouraged the production of highly adulterated and inferior rubber which soon came to be automatically discounted on the world market. Rubber marketing is not controlled by a marketing board.

In 1957, the Western Nigeria Ministry of Agriculture initiated its rubber improvement campaign, designed to increase the income of the producers and to improve long-term interest by encouraging the planting of high yielding trees and the use of better cultural practices. Along with this scheme came the establishment, in 1961, of the Rubber Research Institute near Benin City. USAID responded to this interest by providing technical assistance and commodities to develop the facility. Today, as reported,

an excellent facility beginning to produce research results is in operation. Current staff numbers four senior and seven junior staff supported by USAID advisors in Tropical Horticulture and Extension Horticulture (on board). An Agronomy Advisor (Plant Pathology) may be brought on board momentarily. In addition Economics and Agricultural Information Advisors are scheduled for FY70 and FY71 respectively.

With the development of the research program, there became an increasing need for extension activities in production, processing and marketing. Stimulated by USAID advisors and in recognition of the importance of rubber to the Midwest State economy, the Rubber Development Board was established in 1967. Its objective is to improve the structure and organization of the natural rubber industry through an active development program, a wider technical and extension service, market research and stricter adherence to international standards of grading to create consumer confidence and establishing a good name for Nigerian rubber. This advisory body has outlined a comprehensive program designed to encourage the formation of cooperative units in which the members will maintain and harvest from their own trees and process the rubber to a finished bale at a processing center - thus offering the smallholder a greater shard of the potential value of natural rubber.

The Rubber Branch of the Ministry of Agriculture and Natural Resources, formed in January 1969, again in response to USAID encouragement and in recognition of the need for increased extension/marketing/processing assistance to smallholders to halt the downtrend in production, is charged with supervising and administering all rubber development activities including extension. Activities of the Branch include: a) distribution of stumps to smallholders; b) refurbishing and building new smoked sheet factories; c) tapper training and placement; and d) supplying advice and information to smallholders on improved rubber production techniques. The current staff of fourteen is advised by a USAID extension specialist who counterparts the Head of the Branch.

USAID considers the current political climate to be particularly conducive to this project. The decline in rubber production in recent years, largely due to the internal conflict, drew considerable attention to the industry and its importance, particularly in the Midwest State. The creation of the Rubber Development Board and the Rubber Branch in the Ministry of Agriculture and Natural Resources indicates the depth of interest and the concern over the future of the industry.

The Military Governor of the Midwest has taken a personal interest in rubber development and has given his support to development activities. An edict against low-quality rubber should help solve some of the marketing/processing difficulties although enforcement is the key to its impact. Not enough time has elapsed to enable a meaningful evaluation but steps to enforce the edict have been taken. Legislation to establish a rubber development fund (through a small tax on exports) and an administrative board is being considered. In the opinion of most rubber personnel this would be another highly positive step for the industry.

Federalization of the Rubber Research Institute is also expected. At the outset of this project, in 1961, there was an understanding that the Federal Government would take over rubber research as soon as funds were available. Due to subsequent internal disorders and the establishment of the Military Government this take-over has been postponed but is still under advisement. Action may have to await a clear definition of the role of the Federal MANR vis-a-vis the states. To date the Midwest State Government has provided staff and funds. It is thought that take-over by the Federal Government will give added impetus to the research program by providing a greater reservoir of technical personnel and increased financing. In addition, the resulting autonomy will permit increased program range. For this reason every encouragement will be given to placing the Rubber Research Institute under Federal auspices.

STRATEGY

The strategy of this project is to assist Nigerian authorities improve all phases of the Nigerian natural rubber industry. The ultimate objective is a Nigerian rubber industry producing larger quantities of high quality rubber meeting world market specifications and supplying the quantities of natural rubber needed to meet the demands of the growing domestic market. It is estimated that the potential exists for a 10-fold increase in production. Equally important, because the major portion of Nigerian rubber is produced by smallholders, a large number of Nigerian farmers will benefit from higher incomes and improved standards of living.

Initially USAID placed its emphasis on the research aspects of rubber industry development, but as the research progressed, it became increasingly apparent that the existing extension activities were not highly successful in getting producers to accept better practices. Thus, production was not increasing at the rate possible. In January 1969 the Rubber Branch in MANR was formed, drawing the most able officers from within the Ministry. The Rubber Branch is charged with supervising and administering all Ministry rubber development activities. The USAID rubber extension advisor is assisting this fledgling organization develop methods and procedures to carry out this responsibility.

A study of the economics of smallholdings, processing and marketing is fundamental to any major break-through in the extension program. No information is available on the economic returns which are possible and which will accrue to smallholders if selected practices are followed. Nor have economic evaluations been made of alternative methods of cultivating, processing and marketing rubber. Additionally, improved communications media and information services are required to disseminate all types of information available and resulting from research to keep the smallholder aware of current practices and market situations. Therefore, USAID is in the process of adding new elements to its original rubber assistance efforts in these areas of economics and agricultural information to stimulate more rapid movement of the industry toward achieving its potential.

Originally it was thought that special assistance in marketing and processing beyond that projected as a part of the research and extension activities would also be required. More recent assessment of the situation leads USAID to believe that on-going activities in these areas will be adequate. The pilot rubber processing plant currently in operation at the research institute is scheduled to continue demonstrating and developing new and better processing methods. The Rubber Branch is expanding its efforts to encourage smallholders to adopt improved techniques of processing and marketing. Recommendations in these production phases will also undoubtedly result from the economic study to be carried out but no major additional input is anticipated. It is expected that after a short time the larger quantities of high quality rubber available will spur private industry to perform some of the needed marketing and processing improvement services.

The economist may also work with the Midwest State agricultural credit authorities if a need for a more suitable or special agricultural credit program is identified.

The multi-pronged assistance approach to a major export earner is in direct agreement with the CSNRD report on Nigerian rural development and with USAID's agricultural strategy as set forth in the Country Field Submission. It is USAID/Nigeria's first project of the "production-oriented" type and as such will be carefully monitored to identify those aspects of the experience gained which can be transmitted or used in other projects of this type now being developed in other areas for different crops. It is expected that this more comprehensive USAID assistance effort will allow all inputs to be more effective and will be mutually stimulating.

In relation to the potential value of the rubber produced, the USAID assistance to rubber production is very small. The 1966 value of exports was valued at about $30 million. U.S. investment is projected at $1.47 million. Precise calculation is impossible, but if the project achieves its goal of doubling exports by 1974, the rate of return will be highly satisfactory. It is forecast that without the project the industry will stagnate at about the 1966 production level.

PLANNED TARGETS, RESULTS AND OUTPUTS

The ultimate objective of the Nigerian rubber development program is a ten-fold increase in rubber exports and income. In 1966 some 64,000 tons of rubber were exported for a value of £11 million (about $30 million). In a projection of future yields obtainable, a conservatively realistic estimate would be the production of 100,000 tons by 1972, 125,000 tons by 1974 (project phase out date), 150,000 tons by 1976, and 200,000 tons by 1980, which at present world prices would be worth some £35 million ($100 million).

Additionally, along with increased acreage in production and higher yields per acre there would be considerably greater employment of manpower in the production and processing operations.

It is also an objective of this project to develop the Rubber Research Institute and the Rubber Branch of the Midwest MANR to a point where future developmental activities can go forward without further external assistance.

More specific targets follow:

1. By 1974 the staffing for both research and extension should be adequate and the more senior members thoroughly familiar with the techniques of rubber research, production and processing.

2. By 1974, also, the establishment and expansion of central nurseries and the training of artesans should assure a consistent supply of good planting material at reasonable prices.

3. Prior to the creation of the Midwest Region (now State) in 1963 there was a functioning system of cooperatives which made possible the production of a high proportion of high-grade ribbed smoked sheet rubber; following creation of the Region, and the withdrawal of the support of the former Western Region Government, these cooperatives ceased to function and the proportion of ribbed smoked sheet rubber fell drastically, to be replaced by low-grade "lump" rubber. Since that time the cooperatives have not been revived. Such revival

is of paramount importance and the cooperatives are the natural foundation of the projected group processing centers. One of the most important aspects of the extension responsibility will be assistance in forming such cooperative societies around processing centers. By 1974 we expect that five cooperatives will be in operation and fully functioning.

4. A testing and quality control service will become available to both producers and processors by the end of 1969. Thereafter this service will become increasingly comprehensive.

5. The organization of a Rubber Advisory Board was accomplished in 1967; certain necessary modifications have since become apparent and these will be completed in 1969. The establishment of a Rubber Development Fund, and administrative board, is contingent on necessary legislation which, hopefully, will be enacted in 1969/70. By 1974 it is expected that regulatory agreements will have ended the processing and export of all lower grade rubbers and will guard against malpractices.

6. To date five annual reports of the activities of the Rubber Research Institute have been prepared and released to all interested parties. Monthly operating reports are regularly produced and find a minor but increasingly interested following; these should probably form the basis of material for quarterly or bimonthly bulletins to subscribers. Ten special reports have been prepared since 1963, and these should form the basis for a journal of the Institute. Additionally, five "standard practice" papers, detailing technical operations, have been released and form the basis of advisory circulars. By 1974 periodic publications at both the technical and popular levels will be produced as a part of the Institute program. In addition, advisory circulars will be published as required.

7. A Publications Section in the Rubber Branch is currently under plan and should become operative by 1970.

COURSE OF ACTION

A. Research

USAID technicians in the areas of tropical horticulture (1969-74), plant pathology (1971-74), foliar analysis (12-15 months), marketing economics (1970-72) and information (1970-72) in cooperation with Nigerian staff will:

1. Continue introduction and testing of new clonal material, together with a program of developing local clones through hand pollinations between the best introduced clones as indicated by the testing program.

From 1961 to 1968 the Rubber Research Institute was largely in a development phase -- planting out long term experiments and expanding planted acreage which now totals 670 acres. In March 1968 the first planted experiment reached tapping maturity. By the end of 1969 other experiments will come into test tapping and thereafter approximately 100 acres per year will be taken in tap. The first of the "30 clone" trials will be ready for test tapping in 1970; resulting yield data from the second year (1971) onwards, together with data on secondary characteristics, recorded since 1965, will make possible the first valid planting recommendations in Nigeria. Such recommendations will be of increasing value over the following six years, during which time the second and third "30 clone" trials and the small scale test of the first 230 locally developed clones will have reached tapping maturity and will expand the amount of high yielding hybrid material recommended for planting under local conditions. Continued introduction of new clones and the development of local clones will assure the production of ever higher yielding material which should make it possible to bring yields to the 3,000-4,000 pounds per acre figure in the next decade.

2. Continue development, testing and selection of high yielding clonal seedling families at an approximate rate of 2 new clonal seedling families per year.

3. As soon as sufficient data on yields become available, and in conjunction with data on growth, wind resistance, and disease considerations, prepare lists of recommended clones for large and moderate scale establishments and multiply sufficient budwood forinitial distribution.

4. Continue all research projects with the objective of decreasing age to maturity, increasing efficiency, decreasing costs, and increasing productivity.

5. Continue staff training and place added emphasis on participation in annual lectures at university level, and training programs for management and artesan level employees of commercial growers.

6. Provide testing and quality control service for rubber processors, to establish consumer confidence and highest return.

7. Test and develop new methods of processing and packaging rubber.

8. Conduct market research, in conjunction with the Rubber Branch, designed at tailoring a particular rubber for a specific consumer with the aim of obtaining a premium price.

9. Continue intercropping and management experiments in the interest of continually increasing smallholder efficiency and profitability.

10. A rubber granulating machine received in 1968 is being used to process experimental samples for data calculations; it will also serve as a pilot for studies of mechanical comminution, and as a demonstration unit for interested parties.

The production of comminuted rubber by chemical or mechanical means offers a more efficient and productive manner of producing special block rubbers which have found a ready market. There is every likelihood that such "tailored" rubbers will entirely replace the more classic crepes and smoked sheet grades within the next decade.

B. Production

USAID advisors to the Rubber Branch of the Midwest Ministry of Agriculture and Natural Resources in the areas of extension (1969-74), agricultural economics (1970-72), and agricultural information (1970-72), in conjunction with Nigerian counterparts will:

1. Inaugurate an economic study of smallholder culture, processing and marketing.

   A comprehensive study of the size and profitability of various types of holdings, processing alternatives (lump, smoked sheet or crumbed rubbers) and marketing systems is necessary for a proper understanding of the problems and potentialities of smallholders who own an estimated 95 percent of the rubber acreage.

2. Encourage the organization of cooperative for producing and/or processing rubber.

3. Continue with present plans to establish group processing centers.

4. Center attention on necessity for legislation against adulteration and the initiation of a discriminatory tax to discourage the production of low grade rubber.

5. Organize structures within the natural rubber industry for:

   a. Proper representation of all interested bodies in an advisory board;

   b. Creation of a rubber development fund, an administering board, sustained by revenue derived from rubber exports;

   c. Establish regulatory agreements which will insure against malpractices and will build up and sustain consumer confidence.

6. Continue in-service training programs for extension staff.

7. Continue tapper training program for smallholders and extend program to include maintenance and disease control.

8. Organize demonstrations and 'field day' exercises for smallholders.

9. Expand number and size of central nurseries for multiplication and distribution of clones and seedlings recommended by the Research Institute.

10. Regularly publish and distribute advisory circulars conveying latest recommendations for plant materials, cultural methods, processing methods, developments in the industry, and most recent world rubber prices.

In order to ensure that viable research and extension units can function independently of outside assistance when the project phases out in FY74 advanced degree training in the U.S. will be provided in the following specialties:

Plant Pathology
Plant Physiology
Extension
Agronomy
Soil Chemistry
Marketing Economics
Statistics

It is expected that one participant will be sent in each of these fields.

OLSON