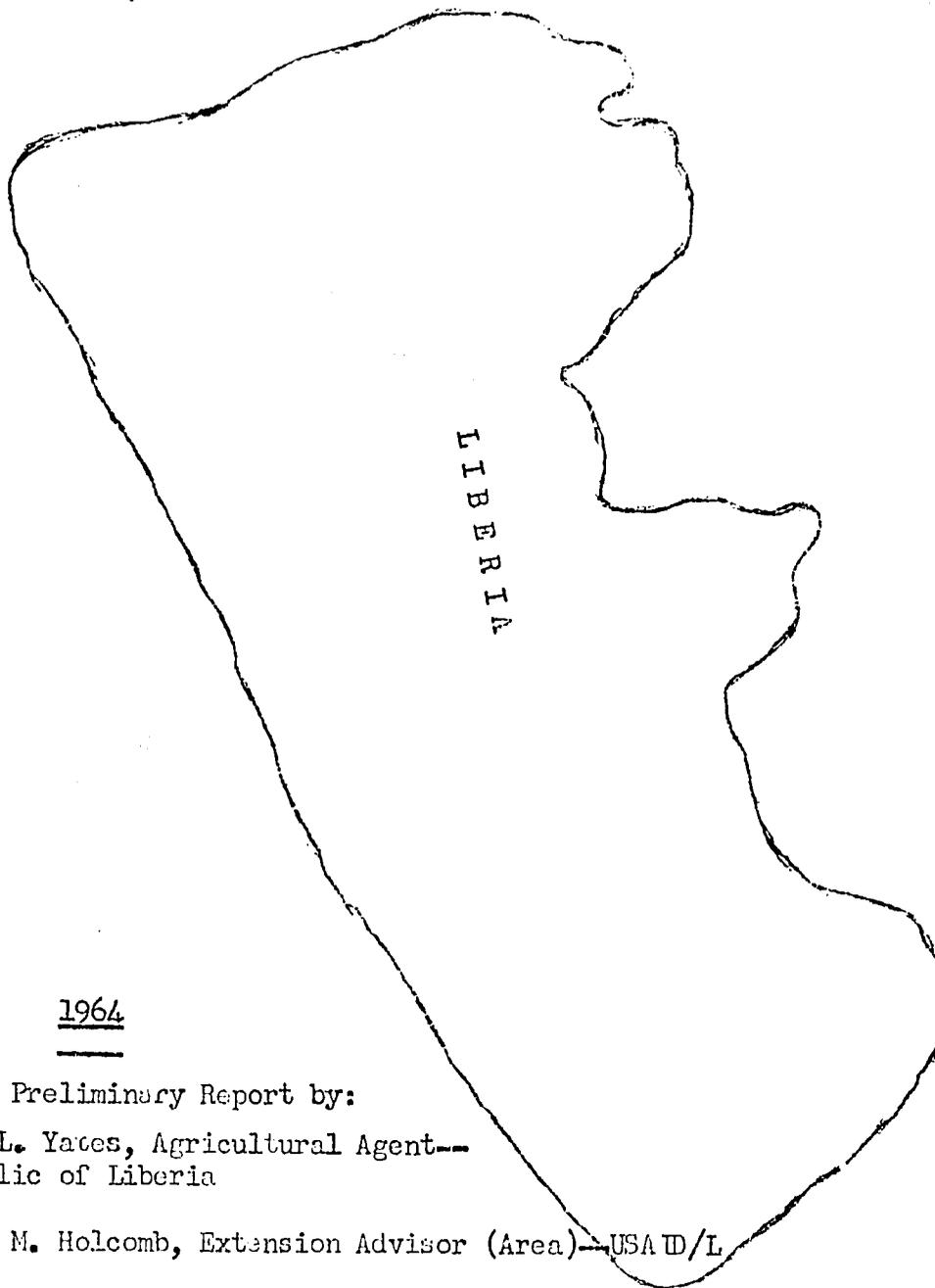


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ACCESS ROAD PROPOSAL (Agriculture and Forestry)

(1)



1964

A Preliminary Report by:

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(1) Compiled at the request of and following consultation with Liberian Government Officials and U.S. Staff concerned with Access Road Development Planning In Liberia.

ACKNOWLEDGEMENT

The assistance and cooperation extended by Liberian Government Officials and, more especially, the local Tribal Authorities and rural people contacted during our nearly five week's of field investigative work on determining Liberia's most immediate and highest priority agricultural and forestry access road development requirements is very much appreciated. Also, the advice and full support of United States Agency for International Development personnel throughout Liberia without whose help this under-taking would have been much more difficult.

Similarly helpful, of course, has been the renewed emphasis on agricultural and forestry access road needs as a result of the President's current priority number one program--"Operation Production." The only real deterrent to expanded access road development now is financial support.

Principal sources of information relied upon and used in the preparation of this preliminary report are included in the Preface which follows.

TABLE OF CONTENTS

	<u>Page</u>
Preface	1
Summary	4
The Situation	7
Forestry	7
Agriculture	8
The Solution	9
General	9
Specific	10
Bong County	11
B-1 Totota--Belefanian--75 miles	11
B-1 (Map) Totota-Belefanian	12-B
B-2 Gbartala--Founetoleh--25 miles	13
B-2 (Map) Gbartala--Founetoleh	14-B
B-3 Kakata--Gibi--25 miles	15
B-3 (Map) Kakata-Gibi	15-B
Cape Mount County	16
C-1 Kle-Pujehn-- miles	16
C-1 (Map) Kle-Pujehn	17-B
C-2 Macca--Jene Wondce--Bombor--50 miles	18
C-2 (Map) Macca-Bombor	18-B
Grand Gedeh County	19
GG-1 (Tchien)-Plahn (Greenville)--70 miles (also Sinoe County)	19
GG-1 (Map) Juarzon-Zwedru	20-B

TABLE OF CONTENTS CONTINUED

	<u>Page</u>
GG-2 Zedru-Ziatown--Ivory Coast--50 miles	21
GG-2 (Map) Zwedru-Ziatown	22-B
GG-3 Tiehnpo (Ivory Coast) - Satike (Sasstown)-- 95 miles (also Maryland County)	23
GG-3 (Map) Sasstown-Tiehnpo	24-B
Lofa County	25
L-2 Kolahun--Lomboba--Belleyella--75 miles	25
L-2 (Map) Kolahun-Bellayella	26-B
L-4 Kolahun Zoi-Takpoima-Yomo (Bomi Hills)--110 miles (also Cape Mount and Montserrado counties)	27
L-4 (Map) Kolahun-Bomi Hills	28-B
L-6 Bopolu-Zorzor--90 miles	29
L-6 (Map) Bopolu-Zorzor	30-B
Maryland County	31
M-1 Pleebo-Zorohe--51 miles	31
M-1 (Map) Zorohe-Pleebo	31-B
M-2, M-3, M-4, M-5, M-6	32
Nimba County	33
N-1 Tapata--Palala--45 miles	33
N-1 (Map) Palala-Tapeta	33-B
N-2 Kample--Bahn--15 miles	34
N-2 (Map) Kample-Bahn	34-B
N-3 Graie--Towehtown--Balaway--50 miles	35
N-3 (Map) Cloie-Balaoway	35-B
N-5 Tape-Compound Three--80 miles (also Grand Bassa County)	36
N-5 (Map) Compound 3-Tapeta	37-B
Sinoe County	38
S-1 Snorgboy Town-Gage Farm--Touh--44 miles	38
S-1 (Map) Snorboy-Touh	38-B

TABLE OF CONTENTS CONTINUED

	<u>Page</u>
S-2 Wiahtown--Plamabo--Kulu--50 miles	39
S-2 (Map) Wiahtown-Kulu	40-B
Table I	41
Table II	42

PREFACE

The report on 'Access Road Proposals (Agriculture and Forestry) Liberia--1964, which follows, represents a concerted effort to reflect the major needs and desires of rural agriculturists and foresters in making more accessible and marketable their present as well as future production potentials. Although a number of older and often conflicting access road plans are in existence, we feel certain, insofar as agriculture and forestry are concerned, that these 1964 proposals are the first which have been developed on the basis of anywhere near complete coordination with the stated requirements and wishes of farm and forest people throughout Liberia.

Toward this end, we traveled extensively in each County and Province and met with the Superintendents and District Commissioners or their designees as well as with Tribal Authorities in every area in which an access road is proposed. We also met with and secured basic information from the local Agricultural Extension Agents and Aides as well as from Liberian Forest Officers.

Other agencies of Government including the Bureau of Natural Resources and Surveys, the Department of Public Instruction and the Department of Public Works and Utilities, are also conducting studies on the access roads which they feel to be most urgent and important. This, in itself, should lead to a final, comprehensive listing of the most immediate and highest priority access road development requirements of every sort on a national basis.

The next most logical step would then seem to be the actual formulation of an up-to-date, completely sound, over-all access road development plan for Liberia. Toward that end, a National Working Committee was

recently established under the Chairmanship of the Department of Public Works and Utilities with representatives from all concerned agencies of Government functioning as committeemen aided, in an advisory capacity, by corresponding members of the United States Agency for International Development in Liberia.

Implementation of the resulting new Access Road Development Plan will, of course, be primarily dependent upon the availability of equipment and funds for the planned road construction over and above that budgeted and required to properly maintain existing roads. It should also, however, be dependent upon the contributions made by local residents with construction proceeding, insofar as possible, according to the individual road priorities established in the over-all plan by the above referenced National Working Committee. Additionally, some construction is being planned by the Military.

The most encouraging factor noted during our extensive travel throughout Liberia, however, was the sizeable mileage of access road (1) already constructed, (2) currently being built and (3) programmed for the immediate future all on a "self-help" basis by the rural people. Also, the general willingness of these people to contribute, as well, reasonable financial support to further access road development especially in their own areas. A similar situation, of course, exists in connection with the various agricultural, Forestry and Mining Concessionaires throughout Liberia.

Our considered opinion is that three important steps should now be seriously considered on a National basis ---(1) an immediate allocation of more of the country's road equipment and available funding each year to the construction of a truck trail net-work with less support of and expenditure on far more costly, lower-mileage, high-standard road con-

struction projects, (2) a concerted use of available road equipment on once-over, "roughing out" of self-help access roads wherever and as local people have satisfactorily completed the clearing and "destumping" (plus culverting or bridging) of the necessary rights-of-way and (3) by credit (rental and fee) reimbursement from Government to Concession Operators for reasonable access road construction costs on such longer connecting routes as are extremely beneficial to the Country's economy as a whole and not otherwise economically feasible on the part of the individual concession operator (many urgently needed forestry haul-roads fall in this category).

Other possibilities include (a) road building by the Military and (b) restricting initial construction of all or nearly all future roads in Liberia to truck-trail standards with conversion to higher standard routes later when the Country is more adequately opened-up. The basis for high standard conversion should, of course, be proven transport requirements and funding availability. The urgent need is to make much more of Liberia readily accessible to automotive travel as quickly as possible.

SUMMARY

Less than 10 percent of Liberia's productive forest resource is presently accessible although the construction of some 150 miles of main haul road—the 80 mile Tappita to Compound Three and the 70 mile Zwedru (Tchien) to Greenville Connection—would lower existing forest inaccessibility from the current 90 percent to in the neighborhood of 45-50 percent. Similarly, while the bulk of current agricultural production not consumed by the individual producer and his family is now reasonably accessible, there are increasing acreages of rubber coming into production as well as of such crops as coffee, cocoa and fruit which are not. Even more important is the fact that any large increase at present in agricultural production within Liberia is heavily dependent on more than subsistence-level farming of extensive areas presently inaccessible to market. Expanded production in back-country areas requiring slow, costly head-loading to market can only result in financial loss to individual farmers and is obviously, therefore, not a sound approach.

For the reasons cited, the report which follows recommends a total of 1,078 miles of agricultural and forestry access roads which are considered to be immediately and urgently needed throughout Liberia. At minimum truck trail standards, such roads should have an over-all average cost somewhere in the neighborhood of \$6-8,000 per mile. On this basis the total estimated cost would approximate \$8,000,000. ^{800,000} Allowing 10 years for accomplishment, the annual cost would average only ~~\$8,000,000~~ ^{800,000} per year.

The roads herein proposed are estimated to serve 110,000 people residing in 501 villages directly alongside and villages within five miles head-loading distance on either side of the probable rights-of-way. A reasonable projection of the present annual market value of agricultural and forestry products now harvested by these people is somewhere near \$5,425,000. Based on observations of increased production on other areas in Liberia as a result of their

being opened up to automotive travel and expanded markets, the potential annual market value of agricultural and forestry products would likely soon be doubled or trebled or at least \$9,220,000 per year.

With such a favorable cost - return ratio and resulting large increase in gross national product, immediate and timely construction of the proposed roads is, obviously, of highest priority. Additionally, the opportunity thereby afforded for more rapid improvement in health, education and similar facilities in the areas served is tremendous.

We therefore recommend that construction of all proposed agricultural and forestry roads be given first priority in the Nation's Road Plan. We realize further, that equipment and funding limitations are a decisive factor in the amount of construction which can be accomplished while properly maintaining existing roads and meeting commitments on new work already under way. Accordingly we suggest that immediate and full consideration be accorded the following:-

1. Allocation of more of the Country's road equipment and available funding each year to the construction of a truck trail network with less support of and expenditure on far more costly, lower-mileage, high-standard road construction.
2. Concerted use of available road equipment on once-over, "roughing out" of self-help access roads wherever and as local people have satisfactorily completed the clearing and "destumping" plus culverting and bridging of the necessary rights-of-way.
3. Credit (rental and fee) reimbursement from Government to Concession Operators for reasonable access road construction cost on such longer connection routes as a whole and not otherwise economically feasible on the part of the individual Concessionaire (many urgently needed forestry haul roads fall in this category).
4. Restricting initial construction of all or nearly all future roads in

Liberia to truck trail standards with conversion to higher standard routes later when the Country is more adequately opened up. The basis for high standard conversion should of course, be proven transport requirements and funding availa-

bility. The urgent need is to make much more of Liberia readily accessible to automotive travel as quickly as possible.

5. Developing, in cooperation with the Military, a program of constructing as many access roads as feasible and practicable using available military road building equipment and personnel.

THE SITUATION

Forestry

Production from Liberia's most important renewable natural resources, forestry, is directly related to its accessibility. At the present time, almost 90 percent of this vast wealth is inaccessible. Stated another way, approximately 8 million acres of the more than 4 million now in Government Forestry Reserves and nearly 5 million acres in unproclaimed forest land can not be harvested until served by market or shipping-point to forest roads.

The full significance of this situation is even more apparent when the estimated 2 billion board feet of readily saleable timber on the 1 million acres of currently accessible forest land is considered on the basis of sustained yield management under the 80-100 year rotation now generally felt to be most suitable for optimum returns from West African hardwood stands. In brief, indications are that the present allowable annual harvest is, therefore, only 25 million board feet in contrast to the nearly 20 million cut in 1962, over 15 million produced during 1963 and 30-40 million projected for 1964. In other words, if no additional forest areas were to become accessible, continuous sustained-yield management will be impossible except at previously low production rates. Certainly not at the increased productive rate projected for 1964 and especially so at the 80-100 million annual rate projected for attainment within the next decade.

Obviously, if increased and expanded forest production is to be soon attained and long continued in Liberia the Nation's forest resources must be made more accessible. Additionally if the present logging and lumbering enterprises are to be adequately supplied and the such additional enterprises now negotiating are to become operational in a complete and timely manner, access road construction must be initiated now. There is no other solution.

Agriculture

Unlike many Countries, particularly in Asia, Liberia is seldom, if ever, faced with serious basic food shortages, especially in rural areas. In other words, starvation is not a truly measurable problem although, oftentimes, malnutrition from imbalanced diet is. Additionally, urban centers are now dependent to a considerable extent on imported rice and meat all of which could and should be produced locally.

This current disparity between food supply and demand is essentially one of inaccessibility from farm to market plus less than full production because of general back-country difficulties in economically disposing of produce surplus to the individual producer's needs.

In summary then, while the bulk of current agricultural production within Liberia which is not consumed by the individual producer and his family is now reasonably accessible there are increasing acreages of rubber coming into production as well as of such crop as coffee, cocoa and fruit which are not. Even more important is the fact that any large increase at present in agricultural production within Liberia is heavily dependent on more than subsistence-level farming of extensive areas presently inaccessible to market. Expanded production in back-country areas requiring slow, costly head-loading to market can only result in financial loss to individual farmers and is obviously, therefore, not a sound approach.

Accordingly, if substantially increased and expanded agricultural production is to be soon attained and continued in Liberia more farm land must be made accessible. Timely progress in this connection requires early expansion in farm to market road construction. There is no other solution.

GENERAL

As indicated in preceding discussion of the current agricultural and forestry situation in Liberia, any substantial increase in the production of timber and farm produce is primarily dependent on improved and greater accessibility to markets. The most immediate need, therefore, is an expanded network of truck trails throughout the entire country. Good high-standard highways permit heavier and more rapid transport but certainly should be considered a luxury item when nearly 90 percent of Liberia's forest resources and at least half of her agricultural land is currently inaccessible. In other words, the most effective use of all available road equipment as well as existing and immediate future road funding will be in opening up the entire country to automotive travel not in constructing a much more limited mileage of extremely expensive roadways. Far better to initially obtain fullest possible access and later up-grade than to initially up-grade and long continue such a serious lack of access to forestry and agricultural resources.

To provide the soundest possible basis for solving this existing lack of accessibility, we devoted nearly five weeks to field investigative work with Government Officials, local Tribal Authorities and rural people. Determined and studied in this manner were Liberia's most immediate and highest priority agricultural and forestry access road needs and requirements. A summary tabulation listing these roads and a map showing their location is appended and made a part of this report.

Additionally, each proposed road is further described and justified in the "Specific" portion of this section which follows:-

SPECIFIC

This section individually details and justifies each of the proposed forestry and agricultural roads included on the appended tabulation and map. The order of presentation is by Counties, arranged alphabetically and by roads, arranged numerically from north to south in every country; i.e;

- Bong County - - - - - B-1, B-2, etc.
- Cape Mount County - - - - - C-1, C-2, etc.
- Grand Bassa County - - - - - GB-1, GB-2, etc.
- Grand Gedeh County - - - - - GG-1, GG-2, etc.
- Lofa County - - - - - L-1, L-2, etc.
- Maryland County - - - - - Ma-1, Ma-2, etc.
- Montserrado County - - - - - Mo-1, Mo-2, etc.
- Nimba County - - - - - N-1, N-2, etc.
- Sierra County - - - - - S-1, S-2, etc.

When a road traverses more than one County it is reported in only one, usually that having the major portion of the route. Also noted, however, are the other Counties served by each such road.

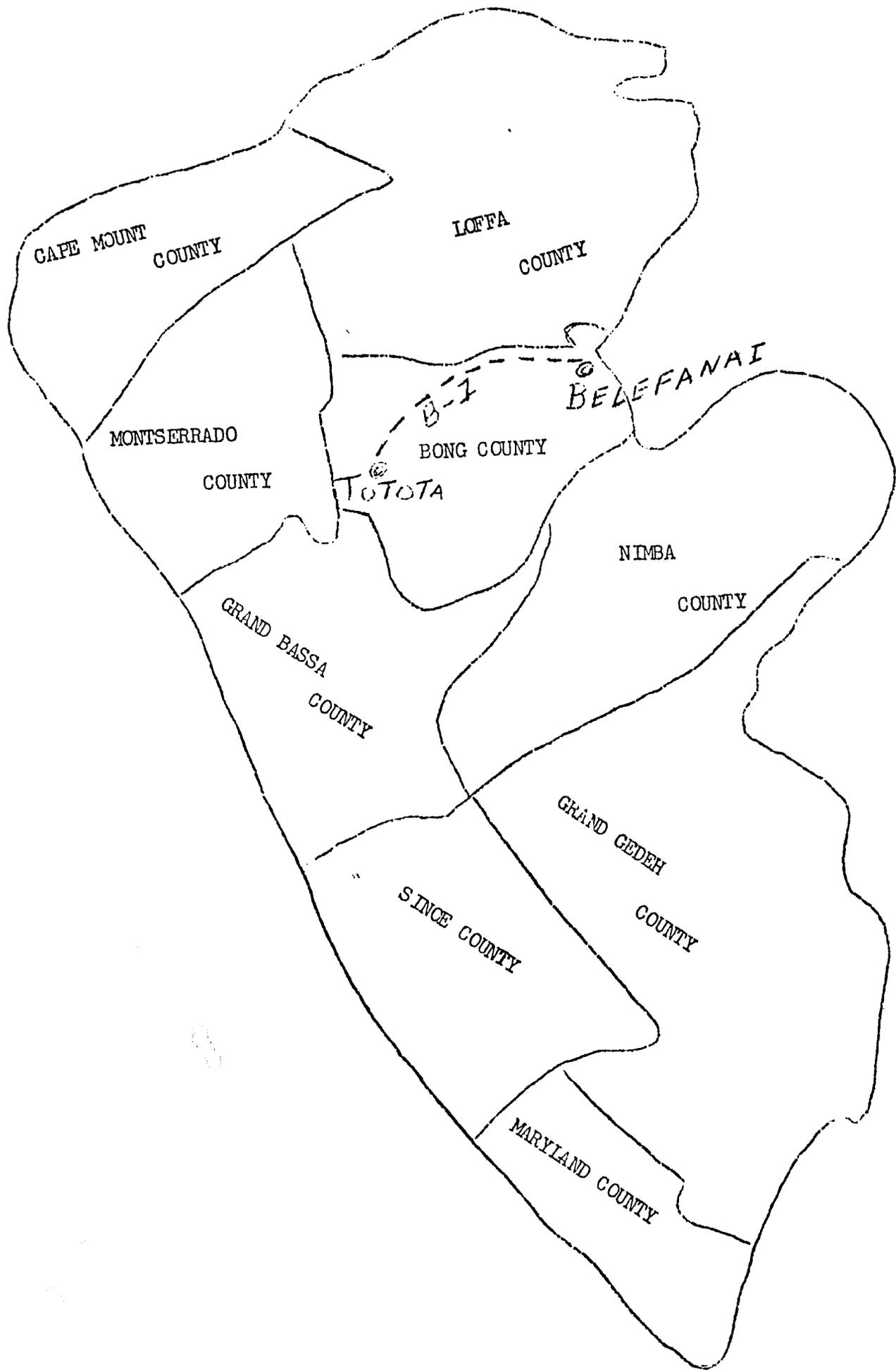
B-1 Totota--Belefanía--75 Miles

For Agriculture, this road will serve 10-15,000 people living in about 3,000 huts in 30 towns and villages alongside or within 2 or 3 hour's walk. The people produce their total food supply of rice, cassava, palm oil, vegetables, and fruits. They also head-load to markets in Belefanía, Gbarnga, Suakoko, Gbatala, Zienzu, and Totota, surplus food commodities and other crops like coffee, cacao, and palm kernels. Within this area, approximately 50,000 bags of rice are produced annually with a market value of nearly \$500,000. If other agricultural crops approach a similar valuation, the total current market value of their present production would approximate \$1,800,000. Such a valuation is somewhat in line with the existing rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. At the present rate of agricultural production then, the value of returns would in less than 2 years, equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in less than 1 year if constructed to adequate truck-trail standards. It is possible that current agricultural production might more than double if and when this road is built, making a total of \$3,600,000.

In the line of forestry, this road will open up an additional 400,000 acres of presently inaccessible or only relatively accessible forest land. If and when construction is completed the present gross operable timber volume within Liberia will be increased some 4-6 billion board feet of which at least 200 million board feet should be of species in current demand on the world market with an equal or greater volume in species acceptable in the domestic market. The annual allowable harvest might thereby be increased around 10 million board feet.

Increased yearly returns to Government on these basis, at existing stumpage rates, might therefore approach \$30,000 or about 5 percent of the probable cost if built to truck trail standards at not to exceed \$8,000 per mile. In other words, stumpage returns alone could pay the entire cost of the road in less than 20 years time. It should also be noted that with the inclusion of currently standard forest land rental fees of 10 cents per acre per year and the collection of the higher, more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct returns to Government might very easily be twice as great.

In summation, annual returns in forest land rental and timber stumpage fees to Government from possible increases in forestry production as a direct result of the proposed road might range from \$30-60,000 in addition to a year to year market return from resulting logs and lumber, at current selling prices, in excess of \$1 million and a many-fold greater valuation in the form of finished products. Added to this would be the \$1,800,000 annual value of agricultural production. In this case, \$600,000 investment for this road on adequate truck trail standards might very well return directly to Government more than \$50,000 annually in fees plus an increase of \$1,800,000 to the economy. Additionally, the proposed road would serve more than 10,000 rural people and greatly facilitate more timely institution of badly needed educational and health facilities.



BONG COUNTY CONTINUED

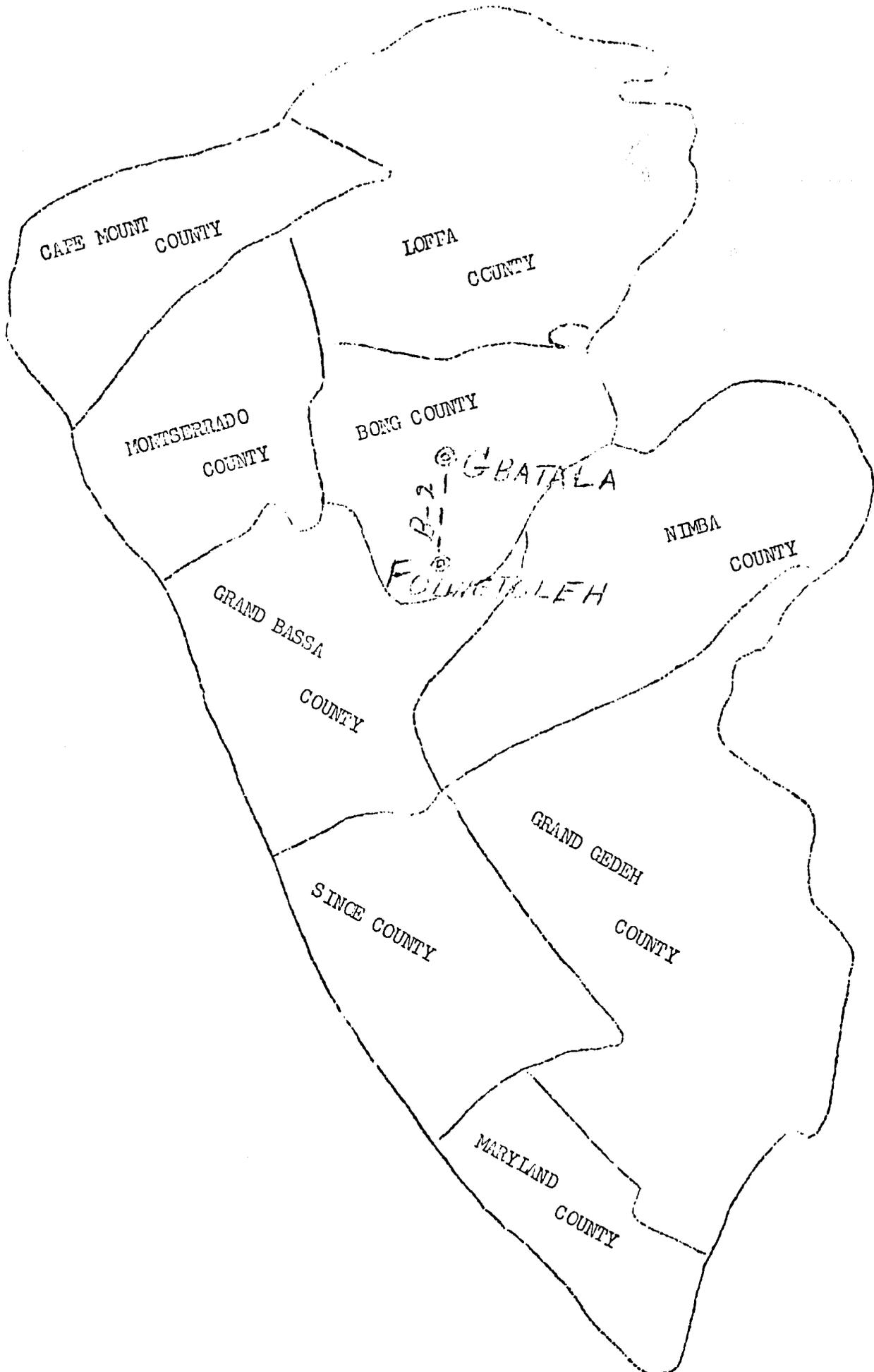
B-2 Gbartala--Founetoleh--25 Miles

In the line of agriculture, this road will serve 4-5,000 people living in 813 huts in 20 villages and towns alongside or within one-half hour's walk. These people produce their total food supply of rice, vegetables, citrus fruits, bananas, peanuts, and corn. They also head-load to markets in Gbartala and in Founetoleh surplus food commodities, and other agricultural products like coffee and cacao. Rubber is head-loaded to Gbartala for transport to Firestone. It is possible that their present production of rice alone exceeds 20,000 bags annually with a current market value of nearly \$200,000. Their other agricultural production would most likely approach a similar valuation and, if so, the total value of their present production would approximate 2-400,000. Such a valuation is somewhat less than the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns therefore would, in about 25 years, equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in about 1 year if constructed to adequate truck trail standards. Additionally, if and when this road is built, current agricultural production might very well be doubled.

In the line of forestry, this road will open up an additional 40,000 acres of presently inaccessible or only relatively accessible forest land. If and when construction is completed the present gross operable timber volume within Liberia will be increased by some 400 million board feet of which at least 20 million board feet should be of species in current demand on the world market with an equal or greater volume in species acceptable in the domestic market. The annual allowable harvest might thereby be increased nearly $\frac{1}{2}$ million

board feet. Increased yearly returns to Government on this basis at existing stumpage rates, might therefore, approach or exceed \$1,500,000, which is more than the probable cost of the entire road if built to highway standards at about \$40,000 per mile as presently planned. In fact, these returns would pay the cost of the road in less than 1 year if constructed to adequate truck trail standards not to exceed \$8,000 per mile. It should also be noted that with inclusion of currently standard forest land rental fees of 10 cents per acre per year and the collection of the higher, more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct returns to the Government might very easily be twice as great.

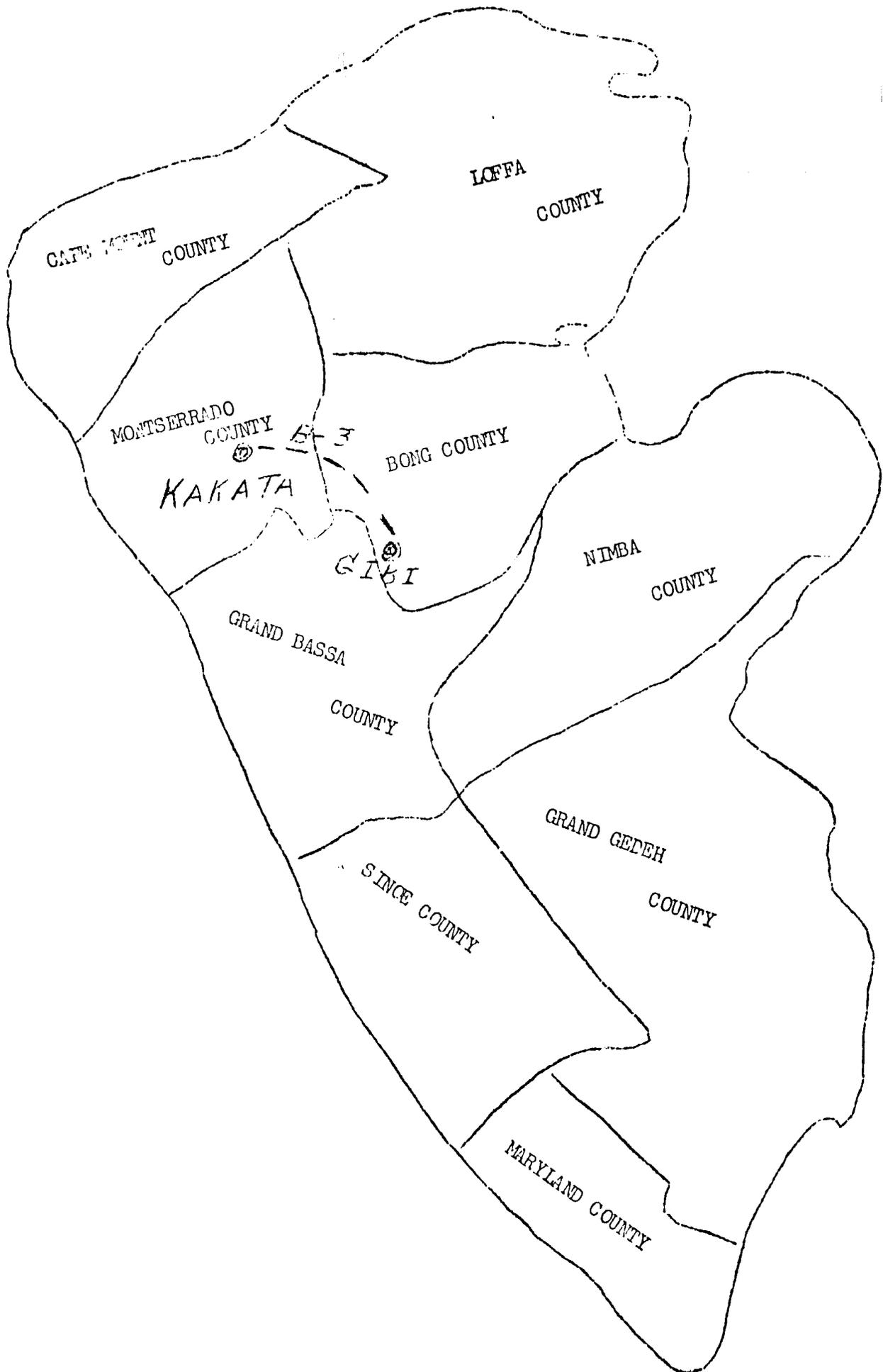
In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increase in forestry production as a direct result of the proposed road might reasonably range from \$1½-3 million in addition to a year after year market return from resulting logs and lumber, at current selling prices, in excess of \$5 million and a many-fold greater valuation in the form of finished products. Added to this also should be the \$2-400,000 annual value of agricultural production. In other words, \$200,000 investment for this road on adequate truck trail standards might very well return directly to Government over \$2 million per year in fees, plus an increase of possibly \$800,000 to the economy. Additionally, the proposed road would service over 4,000 rural people, and greatly facilitate more timely institution of badly needed educational and health facilities.



BONG COUNTY CONTINUED

B-3 Kakata--GBI--25 Miles

Agriculturally, this road will serve approximately 1,000 people living in about 150 huts in more than 12 villages alongside or one to two hour's walk. It will also serve 18 large rubber farms with a large population on each farm. The people whom this road will serve, except for some of the rubber farm owners, produce their total food supply of rice, cassava, fruits, oil palms, and vegetables. In addition, agricultural commodities, including the food crops mentioned, coffee and cacao are head-loaded to markets in the Kakata, and Saisala areas. Coagulum from some of the rubber farms is head loaded to the road and transported to Firestone market, other rubber farms are not yet in production. Farmers from this area produce approximately 2,000 bags of rice annually with a market value of \$20,000. If their other agricultural production approach a similar valuation, the total current market value of their present production would approximate \$20-40,000. Such a valuation is somewhat less than the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. At the present rate of agricultural production then, the value of produce would, in about 30-35 years equal the entire cost of this road if built to highway standards as presently planned by the Department of Public Works and Utilities or in less than 7 years if constructed to adequate truck trail standards. If and when this road is built, it is possible that agricultural production might more than double the present rate of production, particularly with more rubber farms coming into production. At this rate then, it would mean an increase of \$40-80,000 annually to the economy of the country.



CAPE MOUNT COUNTY

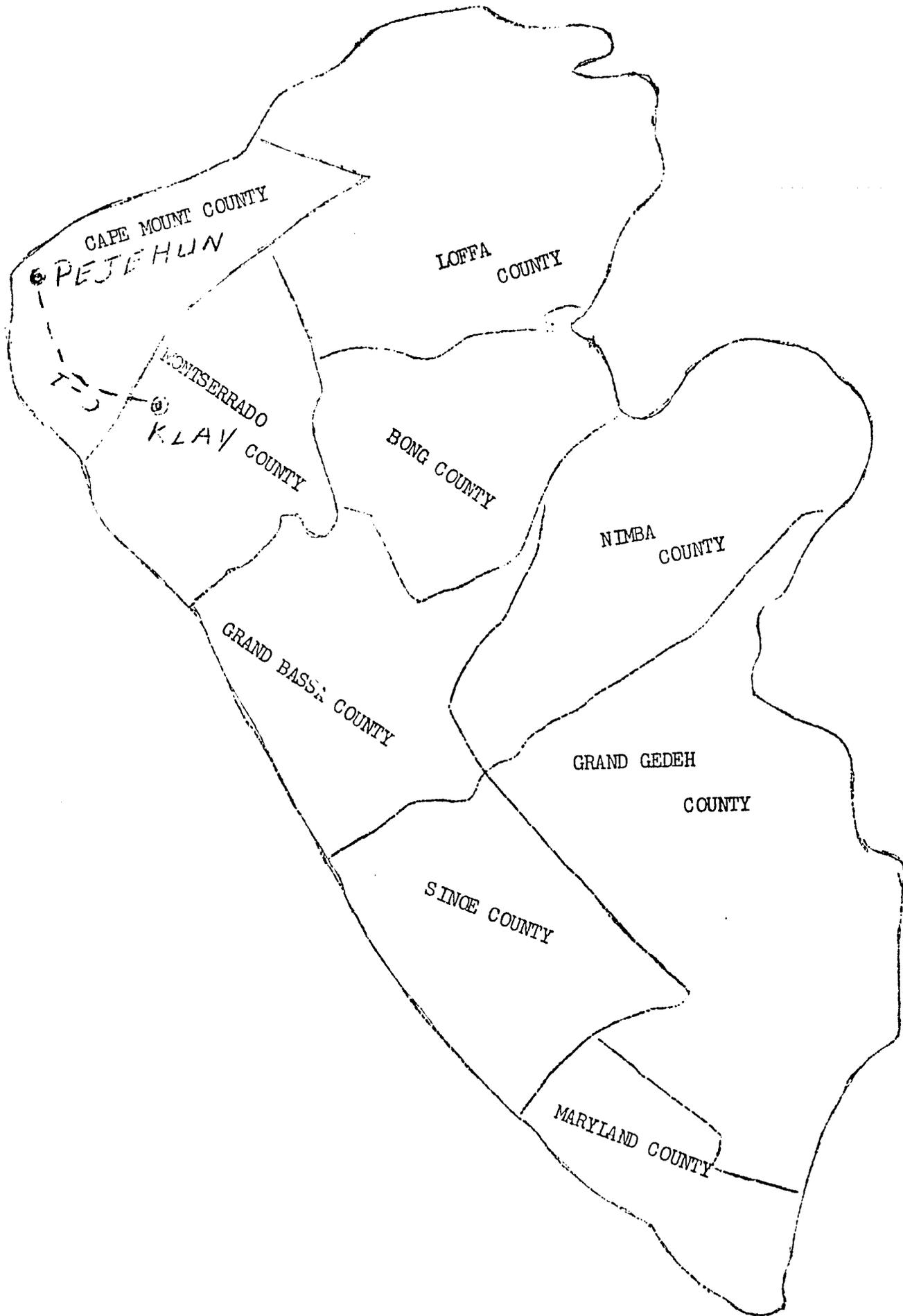
C-1 Kle-Pujehn-- 36 miles

This road would open up an additional 320,000 acres of presently inaccessible or only relatively accessible forest land. If and when construction is completed the present gross operable timber volume within Liberia will be increased some 3 billion board feet of which at least 160 million board feet should be of species in current demand on the world market with at least double that volume in species acceptable in the domestic market. The annual allowable harvest might thereby be increased 8 million board feet. Increased yearly returns to Government on this basis, at existing stumpage rates, might therefore approximate \$24,000 or around 2 percent of the probable cost of the entire road if built to highway standards at about \$40,000 per mile. In other words, such stumpage returns alone could pay the entire cost of the road in about 60 years time. However, and even more significant these same returns would pay the cost of the entire road in less than 25 years if constructed to adequate truck trail standards at not to exceed \$8,000 per mile. It should also be noted that with the inclusion of currently standard forest land rental fees of 10 cents per acre per year and collection of the higher, more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct returns to Government might very easily be twice as great.

Agriculturally speaking, this road would directly serve some 8,000 people living in over 1,000 huts located in at least 70 villages alongside or within a half days walk. These people not only meet their own food requirements--rice, palm oil, vegetables, fruits, and some meat--but also head load considerable quantities of these commodities along with coffee, piassava, cocoa, and palm kernels to both the Kle road and Pujohn

road for sale on the local market. On this basis, their present production of rice alone very probably exceeds 14,000 bags annually with a current market value in excess of \$146,000. Their other agricultural production would most likely also approach a similar valuation and, if so, the current market value of their present production would approximate \$300,000. Such a valuation is somewhat less than the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns, therefore, would in 5 years equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities or in less than 1 year if constructed to adequate truck-trail standards. Additionally, if and when this road is built, current agricultural production might soon be at least doubled or trebled.

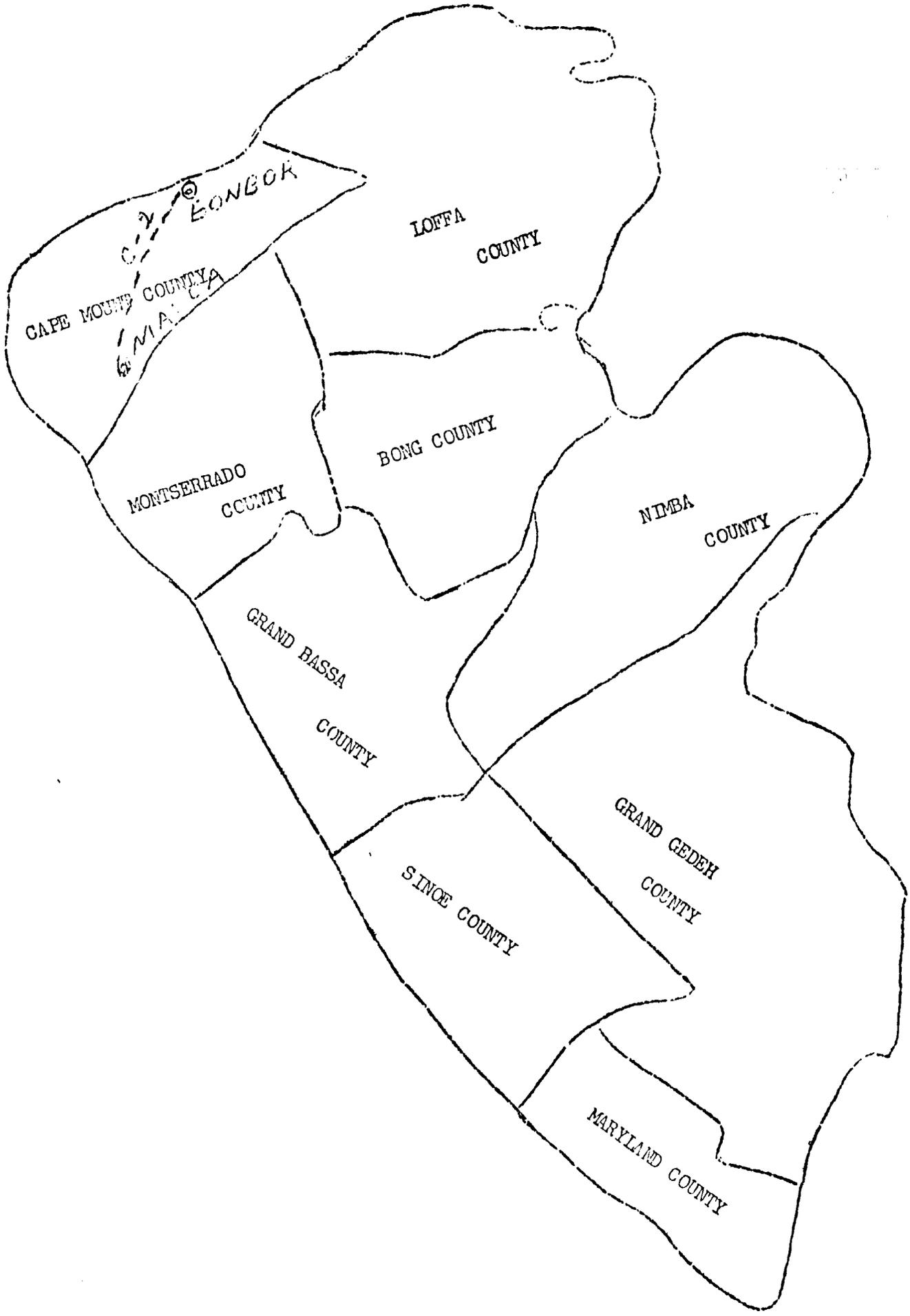
In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increases in forestry production as a direct result of the proposed road might reasonably range from \$24-48,000 in addition to a year after year market return from resulting logs and lumber, at current selling prices, in excess of \$800,000 and a many-fold greater valuation in the form of finished products. Added to this also should be the \$300,000 annual value of agricultural production. In other words, a \$280,000 investment for this road on truck trail standards (or \$1½ million to highway standards) might very well return to Government nearly \$50,000 annually in fees plus increasing Liberia's economy more than \$300,000 per year. Additionally, the proposed road would service over 8,000 rural people and greatly facilitate more timely institution of badly needed educational and health facilities.



CAPE MOUNT COUNTY CONTINUED

G-2 Macca--Jene Wondee--Bombor--50 Miles

In the line of agriculture, this road will serve approximately 5-6,000 people living in more than 900 huts, located in about 45 different towns or villages. These people not only meet their food requirements of rice, palm oil, fruits and vegetables, but they head-load the surplus of these commodities along with a considerable quantity of coffee, cacao, palm kernels, and piassava to Mano river project, Boni Hills, Robertsport, and Sierra Leone border to sell on the markets. The present production of rice alone very probably exceeds 10,000 bags annually with a current market value of nearly \$100,000. Their other agricultural production would most likely approach a similar valuation and, if so, the current market value of their present production would approximate \$200,000. Such a valuation is somewhat less than the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns, therefore, would in 10 years equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in less than 3 years if constructed to adequate truck trail standards. It is also possible that, if and when this road is built, current agricultural production might be doubled in the future, bringing about an increase of around \$200,000 in the economy of the country.



GRAND GEDEH COUNTY

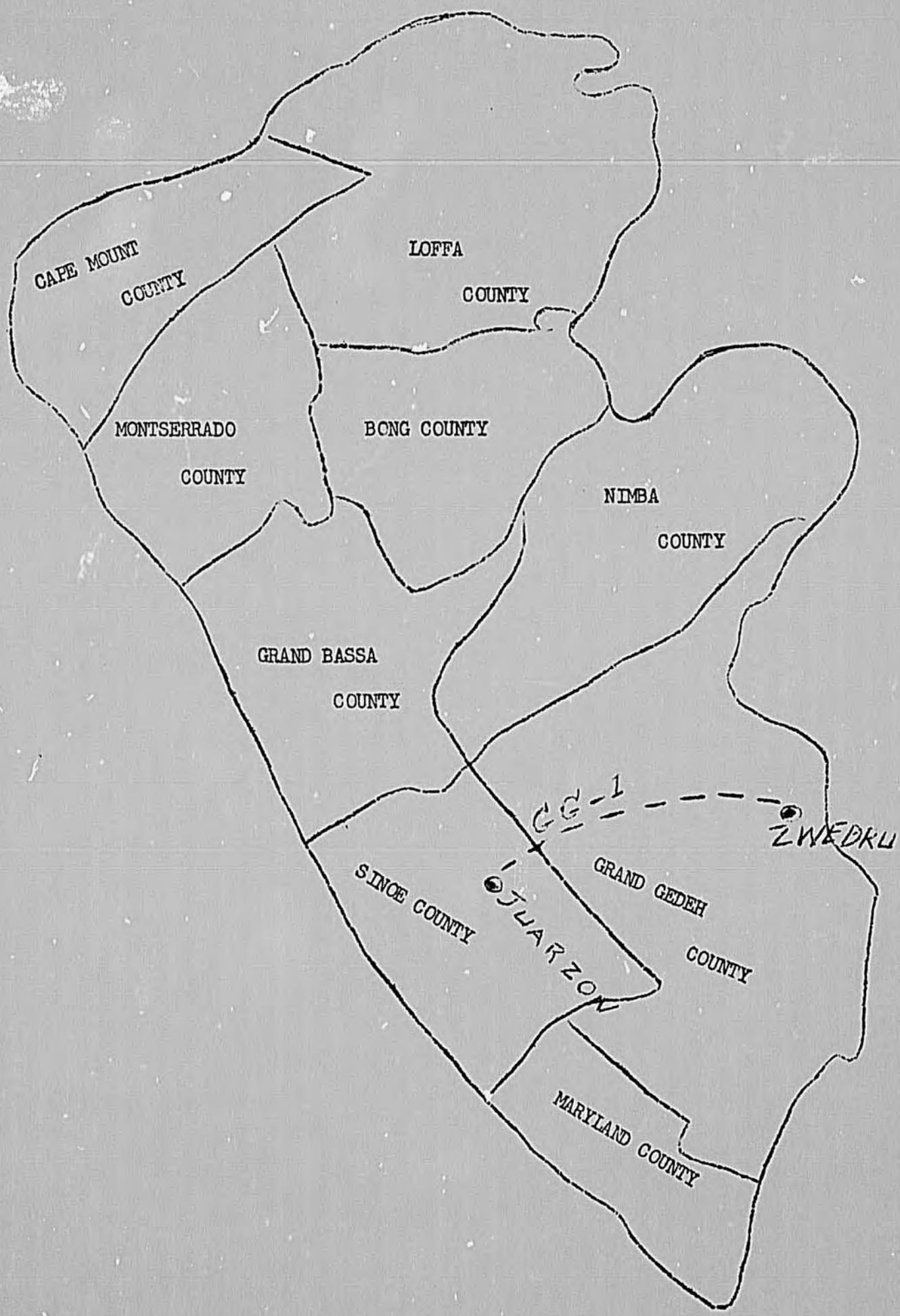
GG-1 Zwedru (Tchien)-Plahn (Greenville)--70 miles (also Sinoe County)

This road would open up an additional 4 million acres of presently inaccessible or only relatively accessible forest land. If and when construction is completed the present gross operable timber volume within Liberia will be increased by some 40-60 billion board feet of which at least 6-10 billion board feet should be of species in current demand on the world market with an equal or greater volume in species acceptable in the domestic market. The annual allowable harvest might thereby be increased nearly 200 million board feet. Increased yearly returns to Government on this basis at existing stumpage rates might, therefore, approach or exceed \$750,000 or nearly 30 percent of the probable cost of the entire road if built to highway standards at about \$40,000 per mile as presently planned. In other words, such stumpage returns alone could pay the entire cost of the road in less than 4 years time. However, and even more significant, these same returns will pay the cost of the entire road in less than 1 year if constructed to adequate truck trail standards at not to exceed \$8,000 per mile. It should also be noted that with inclusion of currently standard forest land rental fees of 10 cents per acre per year and the collection of the higher, more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct returns to Government might very easily be twice as great.

Agriculturally speaking, this road would directly serve some 2-3,000 persons living in nearly 400 huts located in at least a dozen villages alongside or within a half day's walk. These people not only meet their own food requirements--rice, cassava, palm oil, fruits, etc. plus meat, largely animals and fish from the forest--but also head-load considerable quantities of agricultural produce to both the Tchien road and Greenville

road for sale on the local market. On this basis, their present production of rice alone very probably exceeds 10,000 bags annually with a current market value in the neighborhood of \$100,000. Their other agricultural production would most likely also approach a similar valuation and, if so, the total current market value of their present production would approximate \$200,000. Such a valuation is somewhat under the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns therefore would, in only 14 years, equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities or in less than 3 years if constructed to adequate truck trail standards. Additionally, if and when this road is built, current agricultural production might soon be at least doubled or trebled.

In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increases in forestry production as a direct result of the proposed road might reasonably range from $\frac{3}{4}$ to $1\frac{1}{2}$ million dollars in addition to a year after year market return from resulting logs and lumber, at current selling prices, in excess of \$30 million and a many-fold greater valuation in the form of finished products. Added to this also should be the \$200-800,000 annual value of agricultural production. In other words, a \$560,000 investment for this road on truck-trail standards (or \$2.8 million to highway standards) might very well return directly to Government in excess of \$1 million annually in fees plus increasing Liberia's economy more than \$500,000 per year. Additionally, the proposed road would service up to 3,000 rural people and greatly facilitate more timely institution of badly needed educational and health facilities.



GRAND GEDEH COUNTY

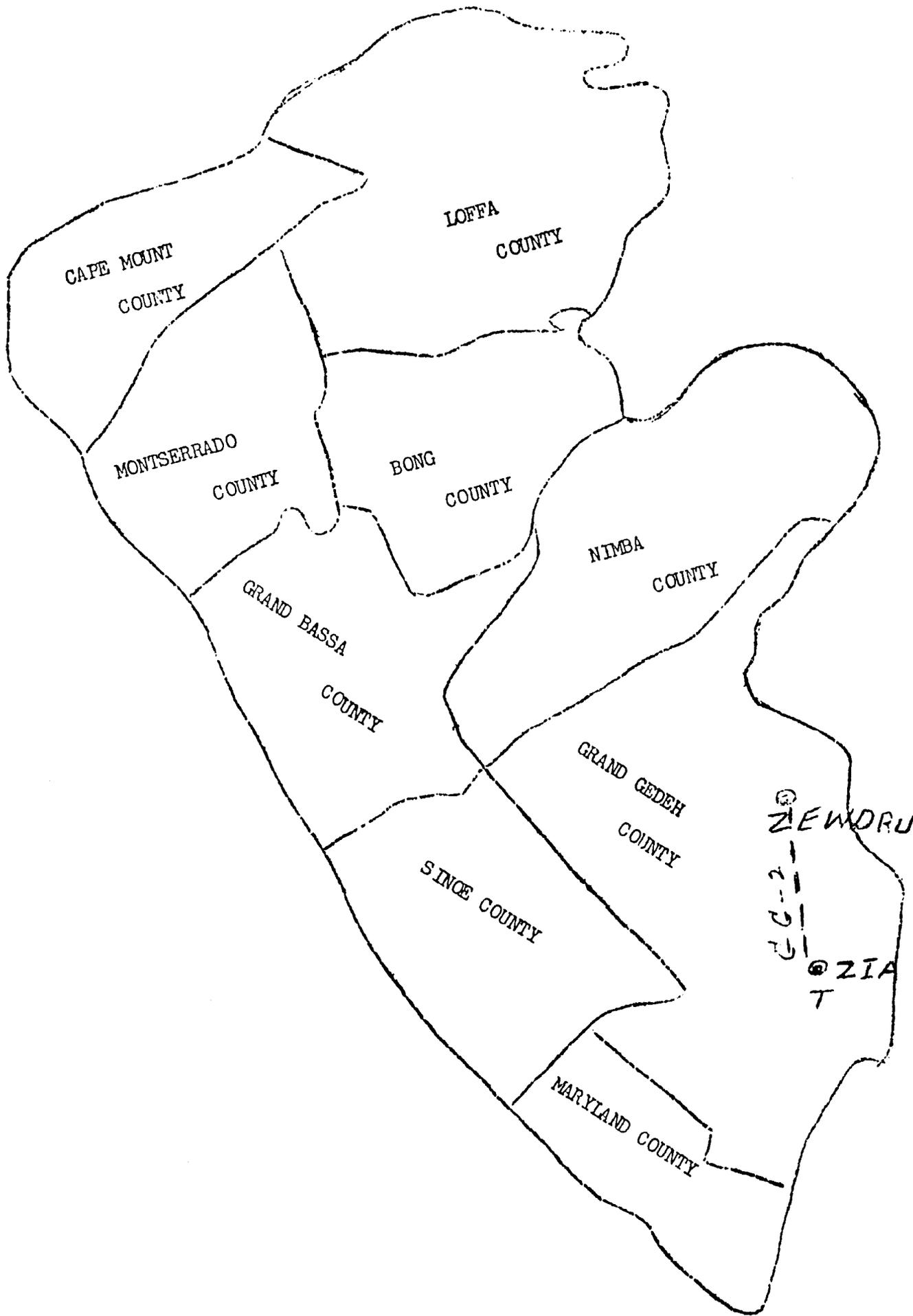
GG-2 Zedru--Ziatown--Ivory Coast--50 Miles

Agriculturally speaking, this road will serve from 2-2,500 people living in 377 huts and located in 20 different towns or villages alongside or 1 to 2 hour's walk. These people, in addition to meeting their own food requirements of rice, cassava, palm oil, fruits and vegetables, head-load considerable quantities of agricultural produce to markets located in towns that are several hour's walk from their homes. Their present production of rice alone very probably exceeds 4,000 bags annually with a current market value of nearly \$40,000. Their other agricultural production would likely approach a similar valuation, and if so, the total current market value of their present production would approximate \$40-80,000. Such a valuation is somewhat less than the existing rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns therefore would, in 25 years, equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in less than 5 years if constructed to adequate truck trail standards. Additionally, if and when this road is built, current agricultural production might be at least doubled.

In the line of forestry, this road will open up an additional 150,000 acres of presently inaccessible or relatively accessible forest land. If and when this road is constructed, the present gross operable timber volume within Liberia will be increased by some 1.5 billion board feet of which at least 225 million board feet should be of species in current demand on the world market with an equal or greater volume in species acceptable in the domestic market. The annual allowable harvest might thereby be increased nearly 7.5 million board feet. Increased

yearly returns to Government on this basis at existing stumpage rates might, therefore, approach or exceed \$22,000 or nearly .011 percent of the probable cost of the entire road if built to highway standards at about \$40,000 per mile as presently planned. Stumpage returns alone could pay the entire cost of the road in 18 years time if built to adequate truck trail standards. It should also be noted that with the inclusion of currently standard forest land rental fees of 10 cents per acre per year and the collection of the higher more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct returns to Government might very easily be twice as great.

In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increases in forestry production as a direct result of the proposed road might reasonably range from \$22-44,000 in addition to a year after year market return from resulting logs and lumber, at current selling prices, in excess of \$700,000 and a many-fold greater valuation in the form of finished products. Added to this also should be the \$40-80,000 annual value of agricultural production. In other words, a \$400,000 investment for this road on adequate truck trail standards might very well return directly to Government over \$40,000 annually in fees, plus a possible increase of \$80,000 to the Liberian economy. Additionally, the proposed road would service over 2,000 rural people and greatly facilitate more timely institution of badly needed educational and health facilities.



GG-3 Tiehpo (Ivory Coast) - Satike (Sasstown) -- 95 miles (also Maryland County)

This road would open up an additional 600,000 acres of presently inaccessible or only relatively accessible forest land. If and when construction is completed the present gross operable timber volume within Liberia will be increased some 6-9 billion board feet of which at least 600 million board feet should be of species in current demand on the world market with an equal or greater volume in species acceptable in the domestic market. The annual allowable harvest might thereby be increased around 15 million board feet. Increased yearly returns to Government on this basis, at existing stumpage rates, might therefore approach \$60,000 or about 8 percent of the probable cost if built to truck trail standards at not to exceed \$8,000 per mile. In other words, stumpage returns alone could pay the entire cost of the road in less than 20 years time. It should also be noted that with the inclusion of currently standard forest land rental fees of 10 cents per acre per year and the collection of the higher more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct returns to Government might very easily be twice as great.

Agriculturally speaking, this road would directly serve some people living in over huts located in at least villages alongside or within a half day's walk. These people not only meet their own food requirements--rice, cassava, palm oil, fruits, etc., plus meat, largely animals and fish from the forest--but also head-load considerable quantities of agricultural produce to local markets. On this basis, their present production of rice alone very probably exceeds bags annually with a current market value in the neighborhood of Their other agricultural production would most likely also approach a

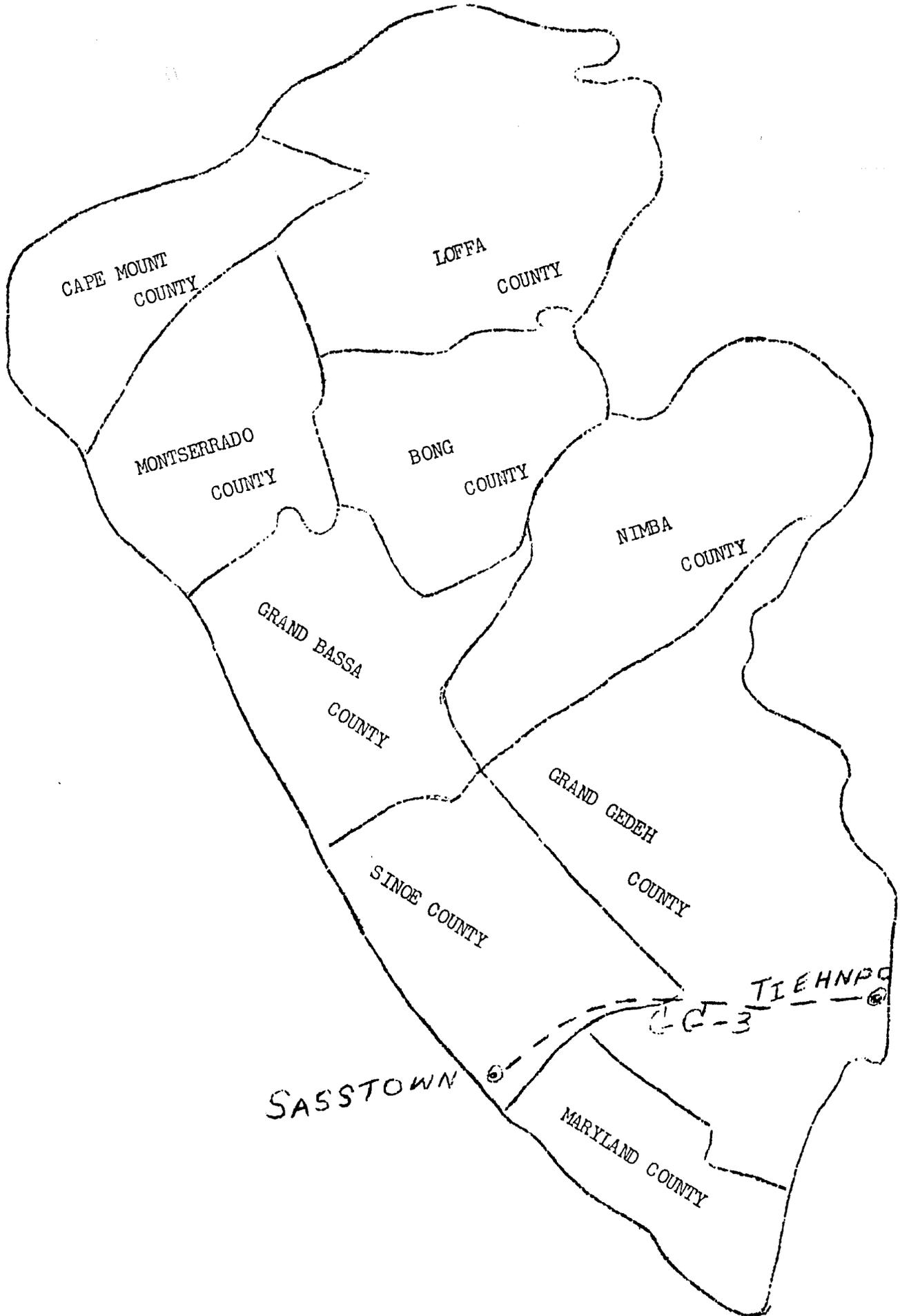
CG-3 Tichnpo - Sasstown 95 Miles

Information on this road is not available. The blank spaces were left there because the people in the areas, including the agricultural extension agent, were supposed to have sent the necessary information to us.

similar valuation and, if so, the current market value of their present production would approximate \$

Such a valuation is the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns therefore would, in years, equal the entire cost of the road. Additionally, if and when this road is built, current agricultural production might soon be at least doubled or trebled.

In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increases in forestry production as a direct result of the proposed road might reasonably range from \$60-120,000 in addition to a year after year market return from resulting logs and lumber, at current selling prices, in excess of \$2 million and a many-fold greater valuation in the form of finished products. In other words, a \$760,000 investment for this road on adequate truck trail standards might very well return directly to Government over \$100,000 annually in fees plus increasing Liberia's Gross National Product over \$ per year. Additionally, the proposed road would serve over rural people and greatly facilitate more timely institution of badly needed educational and health facilities.



LOFA COUNTY

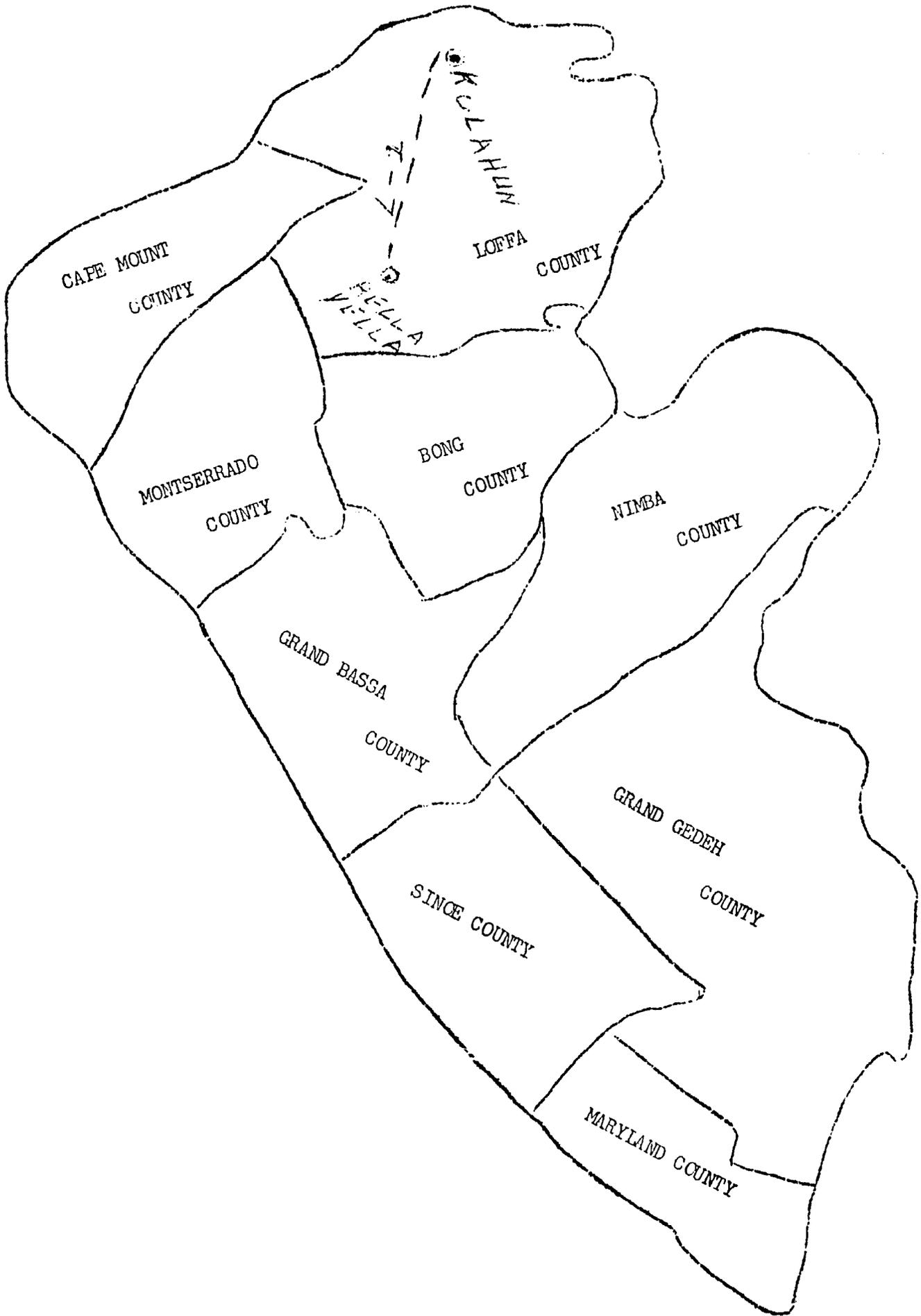
L-2 Kolahun--Lomboba--Belleyella--75 Miles

In the line of agriculture, this road will serve some 3,000 people living in about 500 huts located in more than 50 different villages and towns alongside or within 2 or 3 hour's walk. The people produce their total food supply of rice, vegetables, and fruits. They also produce and head-load to markets in Kolahun, Lomboba, and Belleyella coffee, cacao, kola, and surplus food commodities. Within this area, approximately 5,000 bags of rice are produced annually with a market value of \$50,000. If other agricultural crops approach a similar valuation, the total current market value of their present production would approximate \$50-100,000. Such a valuation is somewhat less than the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. At the present rate of agricultural production then, the value of produce would in around 40 years, equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in about 8 years if constructed to adequate truck trail standards. It is also possible, that if and when this road is built, agricultural production might more than double the present rate.

In the line of forestry, this road would open up some 300,000 acres of presently inaccessible forest land. If and when construction is completed, the present gross operable timber volume within Liberia will be increased some 3-5 billion board feet of which at least 150 million board feet should be of species of current demand on the world market with annual or greater volume in species acceptable in the domestic market. The annual allowable harvest might thereby be increased around 7 million board feet. Increased yearly returns to Government on this basis, at existing stumpage rates, might therefore approach \$21,000 or about

3.5 percent of the probable cost of the road if built to truck trail standards at not to exceed \$8,000 per mile. Stumpage alone could pay the entire cost of the road in 28 years time. It should also be noted that with the inclusion of currently standard forest land rental fees of 10 cents per acre per year and the collection of the higher more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct turns to Government might very easily be twice as great.

In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increases in forestry production as a direct result of proposed road might reasonably range from \$21-42,000 in addition to a year after year market return from resulting logs and lumber, at current selling prices, in excess of \$800,000 and a many-fold greater valuation in the form of finished products. Added to this should be the \$50-100,000 annual value of agricultural production. The \$600,000 investment for this road on adequate truck trail standards might very well return directly to Government over \$40,000 annually in fees plus, an increase of possibly \$100,000 to the Liberian economy. Additionally the proposed road would service over 3,000 rural people and greatly facilitate more timely institution of badly needed educational and health facilities.



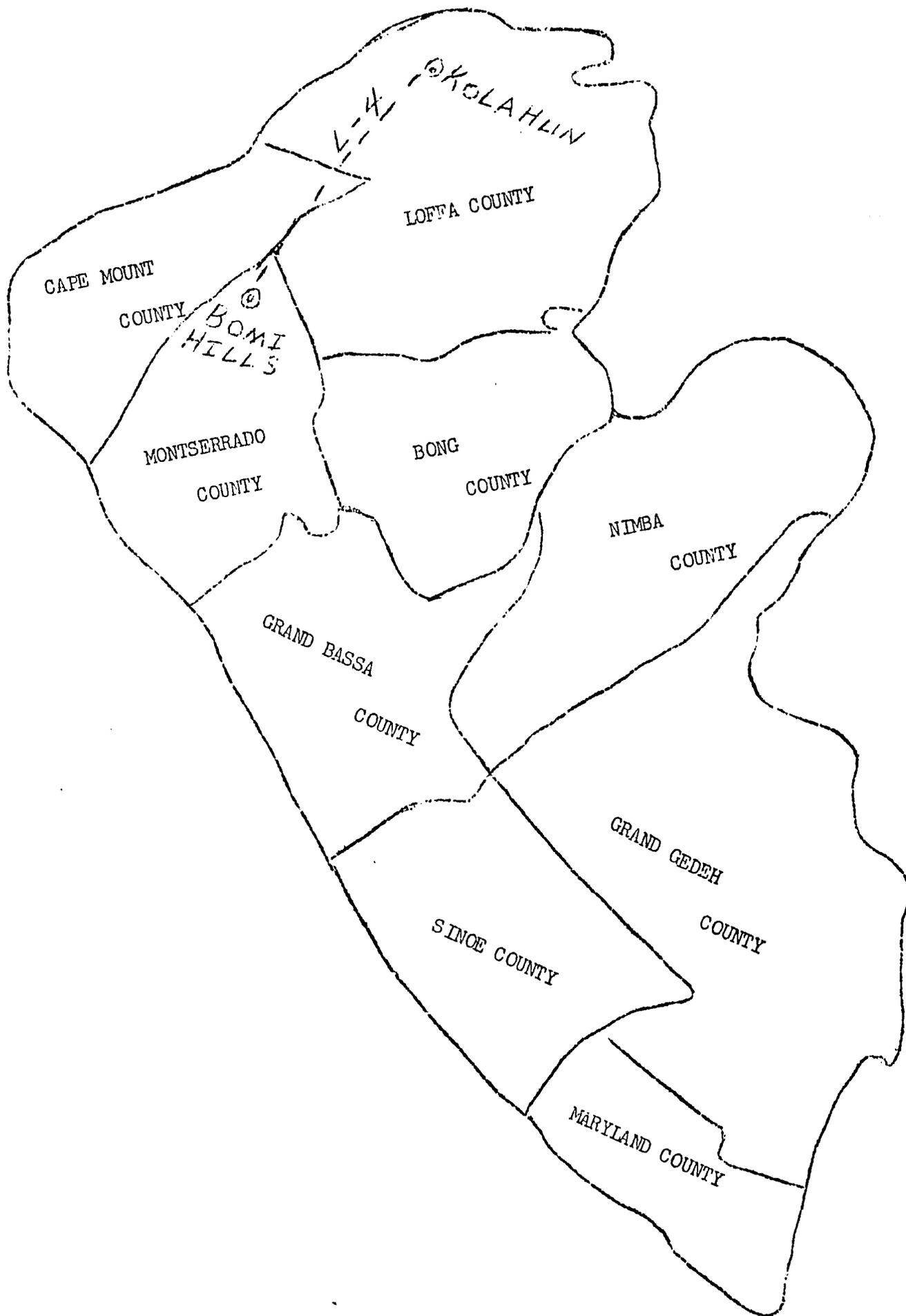
L-4 Kolahun Zoi-Takpoima-Yomo (Bomi Hills)-110 miles
(Also Cape Mount and Montserrado Counties)

This road would open up an additional 2 million acres of presently inaccessible or only relatively accessible forest land. If and when construction is completed, the present gross operable timber volume within Liberia will be increased some 20-30 billion board feet of which at least 1 billion board feet should be of species in current demand on the world market and another 2 or more billion board feet should be of species acceptable in the domestic market. The annual allowable harvest might, thereby, be increased some 35-40 million board feet. Increased yearly returns to Government on this basis at current stumpage rates might, therefore, approximate \$150,000 or over 3 percent of the probable cost of the entire road if built to highway standards at about \$40,000 per mile as presently planned by the Department of Public Works and Utilities. In other words, such stumpage returns alone could pay the entire cost of the road in less than 30 years time. However, and even more significant, these same returns will pay the cost of the entire road in less than 6 years if constructed to adequate truck-trail standards at not to exceed \$8,000 per mile. It should also be noted that with the inclusion of currently standard forest land rental fees of 10 cents per acre per year and the collection of higher, more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, returns to Government might very easily be twice as great.

Agriculturally speaking, this road would directly serve some 2-3,000 people living in over 400 huts located in at least 20 villages alongside or within a half day's walk. These people not only meet their own food requirements--rice, cassava, palm oil, fruits, etc., plus meat, largely animals and fish from the forest--but also head-load considerable quantities of agricultural produce to both the Kolahun road

and Bomi Hills road for sale on the local market. On this basis, the present production of rice alone very probably exceeds 11,000 bags annually with a current market value in excess of \$110,000. Their other agricultural production would most likely also approach a similar valuation and, if so, the total current market value of their present production would approximate \$220,000. Such a valuation is somewhat under the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns therefore would in only 20 years equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities or in only 4 years if constructed to adequate truck trail standards. Additionally, if and when this road is built current agricultural production might soon be at least doubled or trebled.

In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increases in forestry production as a direct result of the proposed road might reasonably range from \$150-300,000 in addition to a year after year return from resulting logs and lumber, at current selling prices in excess of \$5 million and a many-fold greater valuation in the form of finished products. Added to this, also, should be the \$220-660,000 annual value of agricultural production. In other words, a \$880,000 investment for this road on truck-trail standards (or \$4.4 million to highway standards) might very well return directly to Government, some \$300,000 annually in fees plus increasing Liberia's Gross National Product around \$6 million per year. Additionally, the proposed road would service up to 3,000 rural people and greatly facilitate more timely institution of badly needed educational and health facilities.

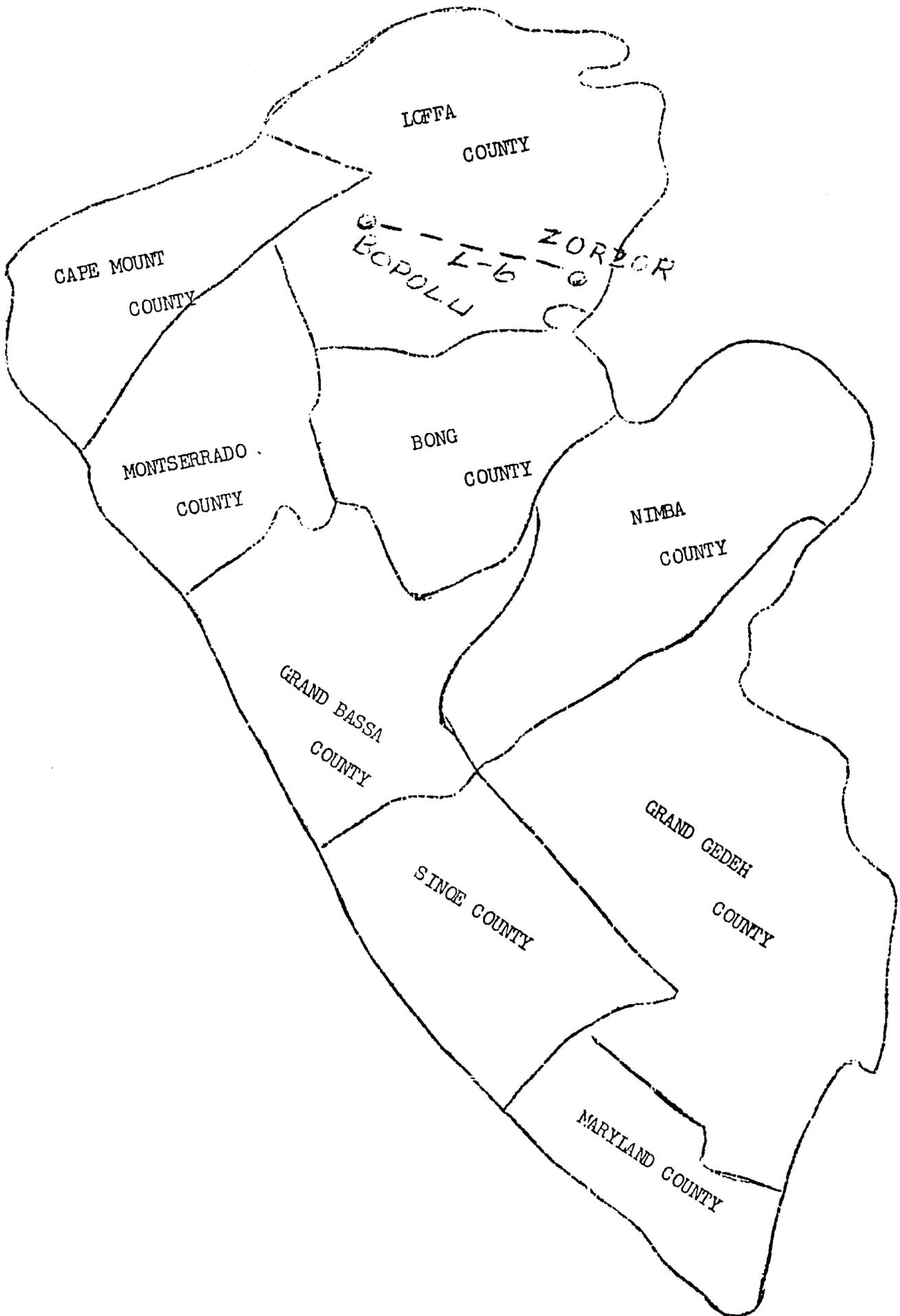


This road would open up an additional 1 million acres of presently inaccessible or only relatively accessible forest land. If and when construction is completed the present gross operable timber volume within Liberia would be increased some 10-15 billion board feet of which over 500 million board feet should be of species in current demand on the world market and at least double this amount should be in species acceptable in the domestic market. The annual allowable harvest might thereby be increased some 25 million board feet. Increased yearly returns to Government on this basis, at existing stumpage rates, might therefore approximate \$100,000 or nearly 3 percent of the probable cost of the entire road if built to highway standards at about \$40,000 per mile. In other words, stumpage returns alone could pay the entire cost of the road in slightly more than 35 years time. However, and even more significant, these same returns would pay the cost of the entire road in just over 7 years time if constructed to adequate truck trail standards at not to exceed \$8,000 per mile. It should also be noted that with the inclusion of currently standard forest land rental fees of 10 cents per acre per year and collection of the higher, more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct returns to Government might very easily be twice as great.

Agriculturally speaking, this road would directly serve some 8,000 people living in over 1,500 huts located in at least 77 villages alongside or within a half day's walk. These people not only meet their own food requirements--rice, cassava, palm oil, fruits, etc., plus meat, largely animals and fish from the forest--but also head-load considerable quantities of agricultural produce to both the Bopolu road and Zorzor road for sale on the local market. On this basis, their present produc-

tion of rice alone very probably exceeds 14,000 bags annually with a current market value in the neighborhood of \$140,000. Their other agricultural production would most likely approach a similar valuation and, if so, the current market value of their present production would approximate \$280,000. Such a valuation is less than the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns, therefore, would in 12 years equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities or in less than 3 years if constructed to adequate truck trail standards. Additionally, if and when this road is built, current agricultural production might soon be at least doubled or trebled.

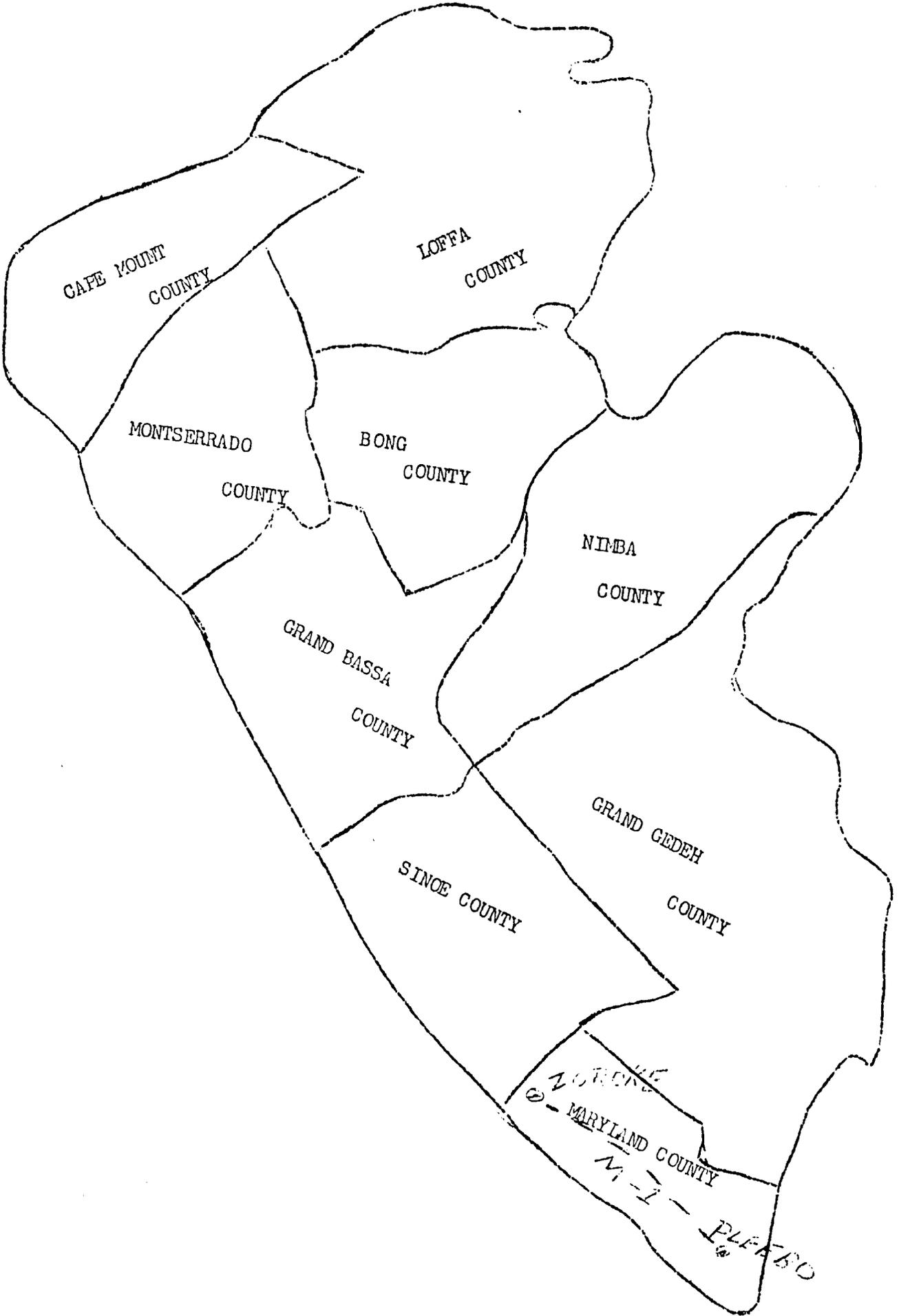
In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increases in forestry production as a direct result of the proposed road might reasonably range from \$1-200,000 in addition to a year after year market return from resulting logs and lumber at current selling prices of nearly \$4 million and a many-fold greater valuation in the form of finished products. Added to this should also be the \$280,000 annual value of agricultural production. In other words, a \$720,000 investment for this road on truck trail standards (or \$3.6 million to highway standards) might very well return directly to Government some \$200,000 annually in fees plus increasing Liberia's economy more than \$280,000 per year. Additionally, the proposed road would service over 8,000 rural people and greatly facilitate more timely institution of badly needed educational and health facilities.



MARYLAND COUNTY

M-1 Pleebo--Zoroke--51 Miles

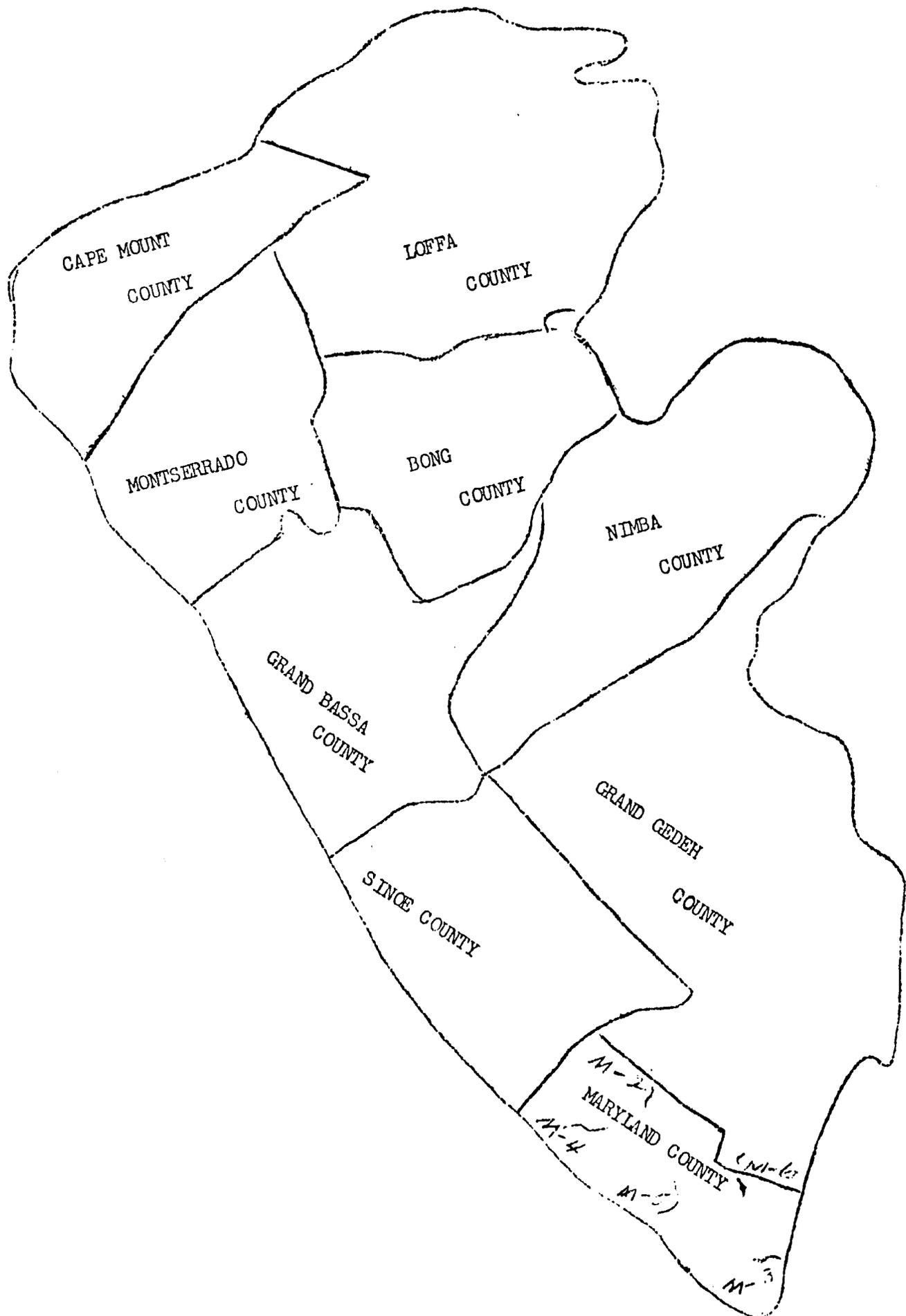
Agriculturally, this road will serve 10,000 to 10,500 people living in about 1,700 huts located in about 12 different towns or villages alongside or within 1 to 2 hours' walk. These people not only produce their total food supply of rice, fruits, vegetables, palm kernels, and sugar cane, they also produce a surplus of these commodities along with coffee, cacao, piassava, and rubber. This surplus of food products, and the other commodities are hand loaded to distant markets to be sold. Within this area, approximately 18,000 bags of rice are produced annually with a market value of around \$180,000. If other agricultural crops approach a similar valuation, the total current market value of their present production would approximate \$180-360,000. Such a valuation is somewhat less than the existing rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. At the present rate of agricultural production, then the value of products would in about 9 years, equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in less than 2 years if constructed to adequate truck trail standards. It is also likely that agricultural production might more than double if and when this road is built. This would mean an increase in the Liberian economy of a possible \$100-200,000 annually.



MARYLAND COUNTY CONTINUED

M-2, M-3, M-4, M-5, M-6

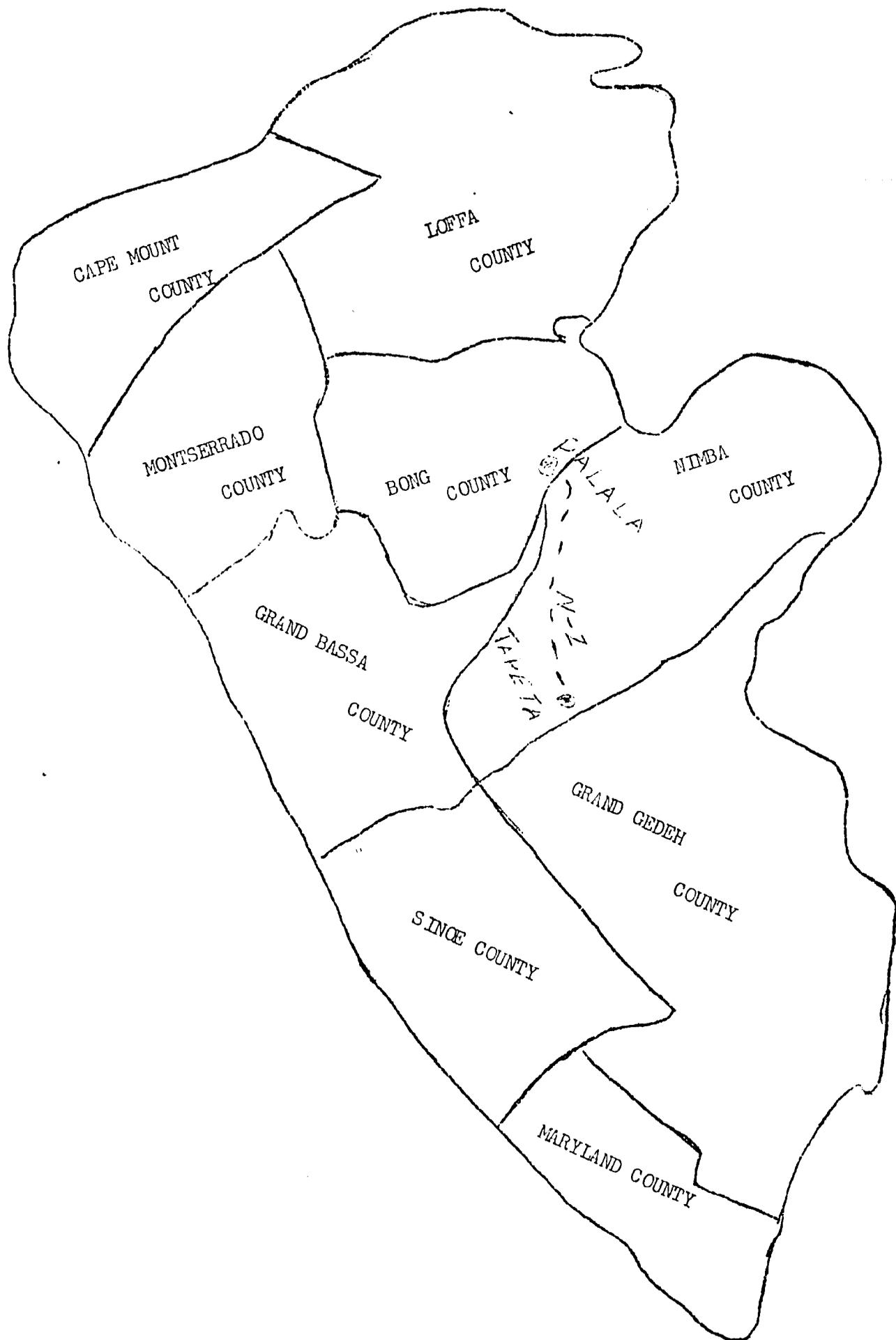
These five roads, Tusak-Bohun, Garmake-Behuen-Loode, Bonike-Garmake, Kaylake-Carbo, and Tuako Wartike-Klipo, have been proposed by the people of Maryland County. These roads, all of which are relatively short, would serve a total of around 9,000 people living in a total of about 1,500 huts, and located in 23 different towns or villages. Although these roads are greatly needed and will serve a large number of people, the committee recommends that these roads be treated as self-help projects, as have been done in some of the other sections of the country. The committee does feel, however, that concerted use of available road equipment on once-over, "roughing out" of self-help access roads be considered in this case.



NIMBA COUNTY

N-1 Tapata—Palala—45 Miles

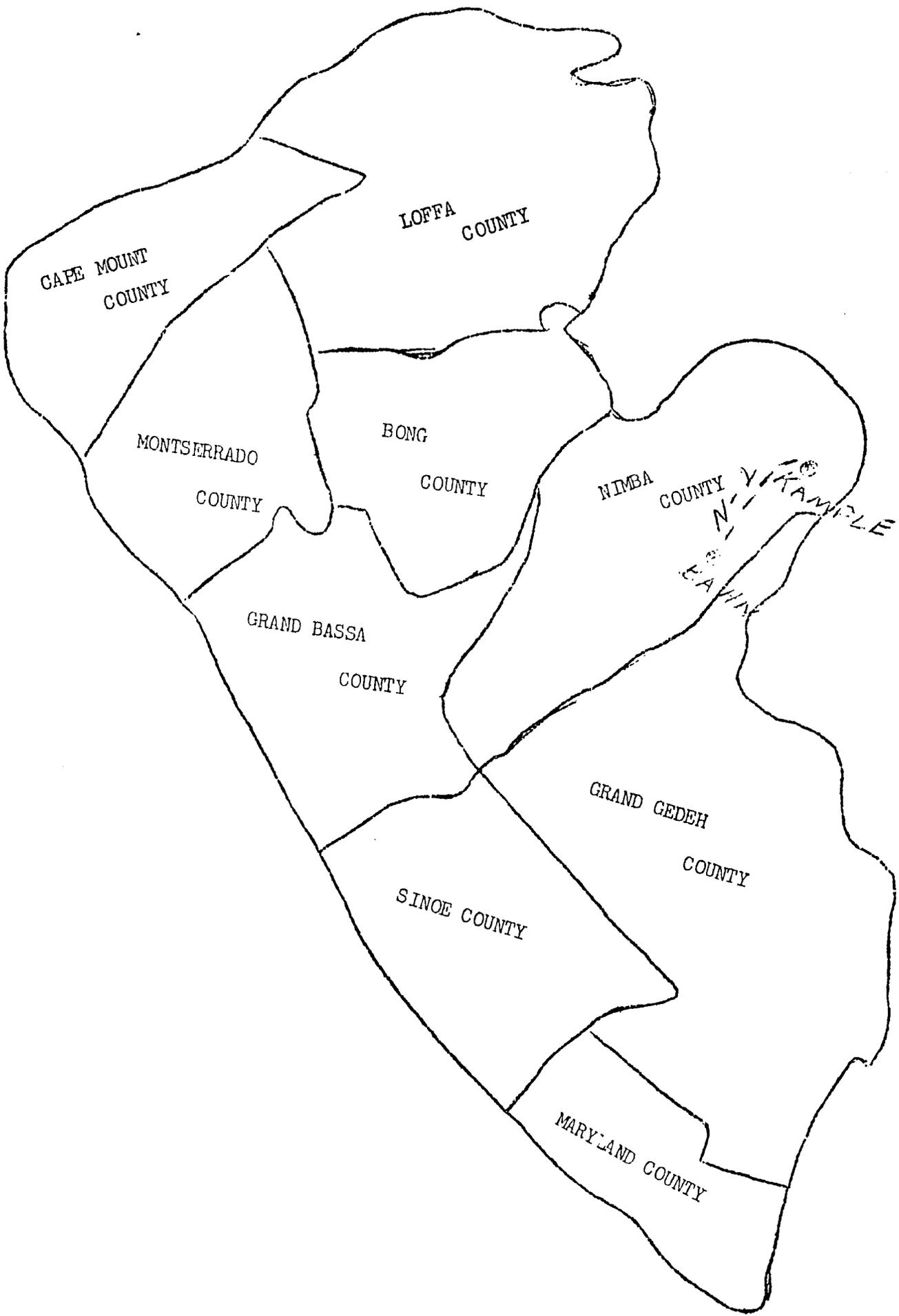
In the line of agriculture, this road will serve around 5,000 people living in about 900 huts, located in about 25 towns or villages alongside or within 1 to 2 hour's walk. The people in this area meet their own food requirements of rice, vegetables, and fruits, and have a surplus of these commodities for sale in markets located several hour's walk from their villages. Rubber is also planted along this route. Rice produced in this area very likely exceeds 9,000 bags with a current market value of \$90,000. Considering that their other agricultural production might likely approach a similar valuation, then the current market value of their present production would approximate \$180,000. Such a valuation is somewhat below the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns, therefore, would in 10 years equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in less than 3 years if constructed to adequate truck trail standards. Additionally, if and when this road is built, current agricultural production might more than double, bringing a possible increase of \$180,000 to the country's economy.



NIMBA COUNTY CONTINUED

N-2 Kampe---Bahn---15 Miles

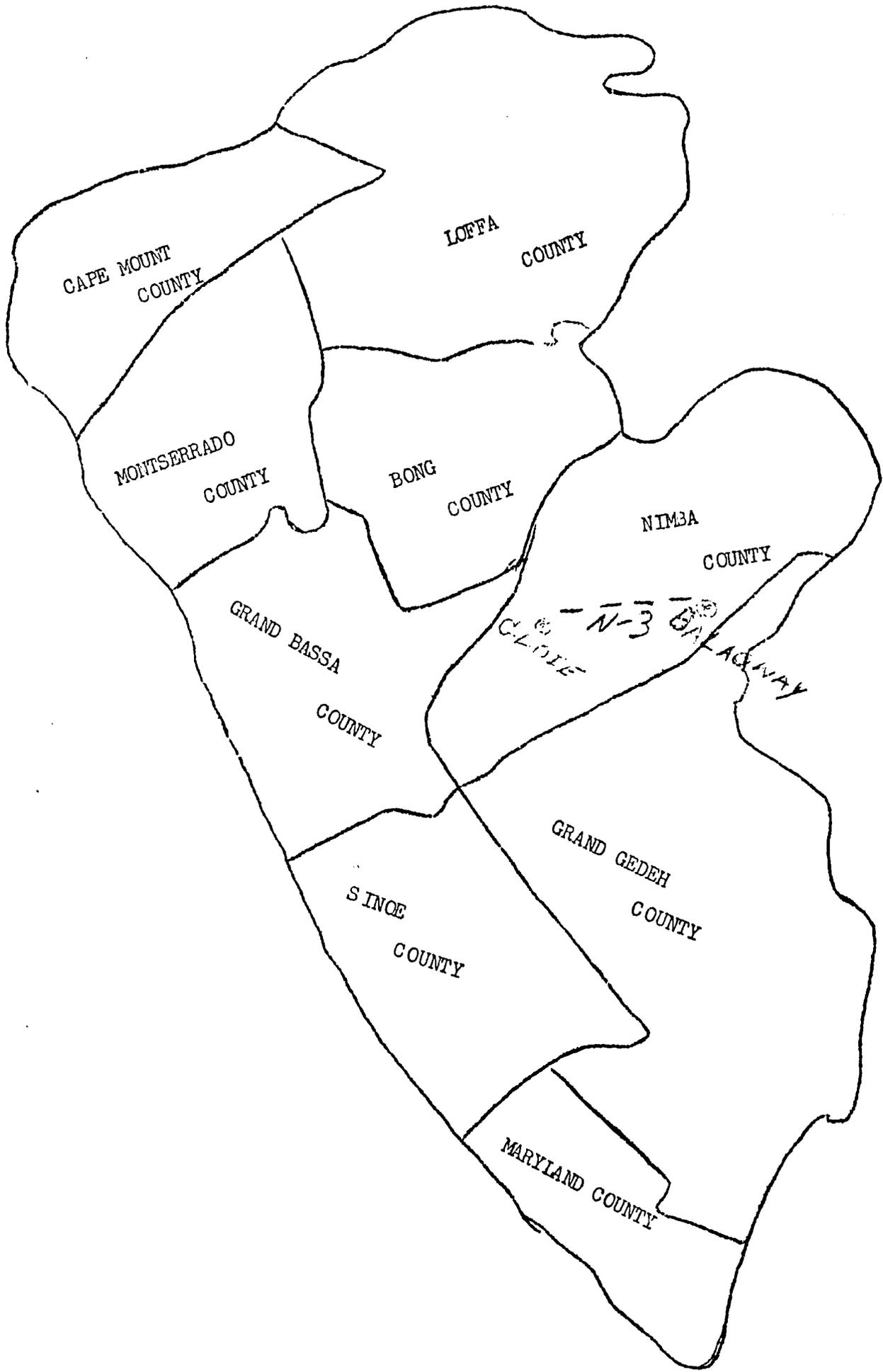
In the line of agriculture, this road, although relatively short in miles, will serve around 16-17,000 people living in about 3,000 huts, located in about 14 different towns or villages alongside or within 1 to 2 hour's walk. The people in this area, in addition to meeting their food requirements of rice, palm oil, fruits, and vegetables, head-load the surplus of these commodities along with a considerable quantity of coffee, and palm kernels to markets located several hour's walk from their villages. Rice alone produced in this area, very likely exceeds 30,000 bags annually with a current market value of nearly \$300,000. Considering that other agricultural production approaches a similar valuation, the current market value of their agricultural production then, would approximate \$600,000. Such a valuation is somewhat below the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns, therefore, would in 2 years equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in less than 1 year if constructed to adequate truck trail standards. It is also possible that, if and when this road is built, current agricultural production might at least double in the future. Such being the case, the economy of the country might be raised by some \$600,000 annually.



NIMBA COUNTY CONTINUED

N-3 Graie—Towehtown—Balaway—50 Miles

Agriculturally speaking, this road will serve approximately 9,000 people living in about 1,500 huts, located in around 14 different villages or towns alongside or within 1 to 2 hour's walk. These people also meet their food requirements of rice, cassava, palm oil, fruits, and vegetables, and head-load the surplus of these commodities along with coffee, palm kernels, and sugar cane products to markets located several hour's walk from their villages. The production of rice alone probably exceeds 16,000 bags annually with a current market value of around \$160,000. Considering that their other agricultural production would most likely approach a similar valuation, the current market value of their present production would approximate \$320,000. Such a valuation is somewhat less than the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns, therefore, would in 7 years equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in less than 2 years if constructed to adequate truck trail standards. Additionally, if and when this road is built, current agricultural production might at least double. This would mean an annual increase of about \$200,000 to the economy of the country.



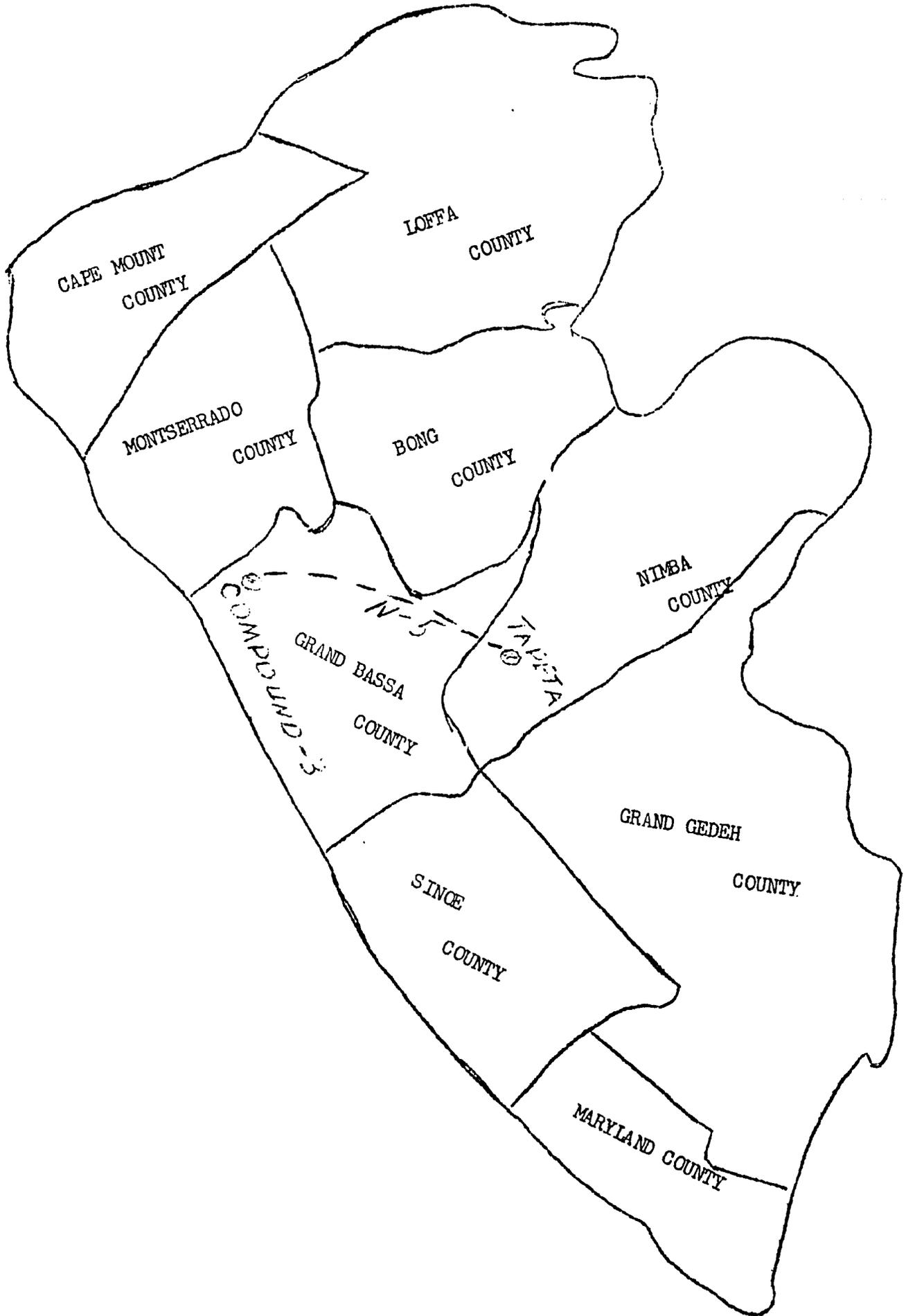
N-5 Tape - Compound Three -- 80 miles
(Also Grand Bassa County)

This road would open up an additional 1 million acres of presently inaccessible or only relatively accessible forest land. If and when construction is completed, the present gross operable timber volume within Liberia will be increased some 10-15 billion board feet of which at least $1\frac{1}{2}$ billion board feet should be of species in current demand on the world market with an equal or greater volume in species acceptable in the domestic market. The annual allowable harvest might thereby be increased nearly 50 million board feet. Increased yearly returns to Government on this basis, at existing stumpage rates, might therefore approximate \$200,000 or around 6 percent of the probable cost of the entire road if built to highway standards at about \$40,000 per mile. In other words such stumpage returns alone could pay the entire cost of the road in less than 20 years time. However, and even more significant, these returns would pay the cost of the entire road in just over 7 years if constructed to adequate truck trail standards at not to exceed \$8,000 per mile. It should also be noted that with the inclusion of currently standard forest land rental fees of 10 cents per acre per year and collection of the higher, more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct returns to Government might very easily be twice as great.

Agriculturally speaking, this road would directly serve some 2,400 people living in over 400 huts located in at least 23 villages alongside or within a half day's walk. These people not only meet their own food requirements--rice, cassava, palm oil, fruits, etc., plus meat, largely animals and fish from the forest--but also head-load considerable quantities of agricultural produce to both the Tapeta road and Compound

Three road for sale on the local market. On this basis, their present production of rice alone very probably exceeds 4,000 bags annually with a current market value in the neighborhood of \$40,000. Their other agricultural production would most likely also approach a similar valuation and, if so, the current market value of their present production would approximate \$80,000. Such a valuation is less than the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns therefore would in 40 years equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities or in less than 8 years if constructed to adequate truck trail standards. Additionally, if and when this road is built current agricultural production might soon be at least doubled or trebled.

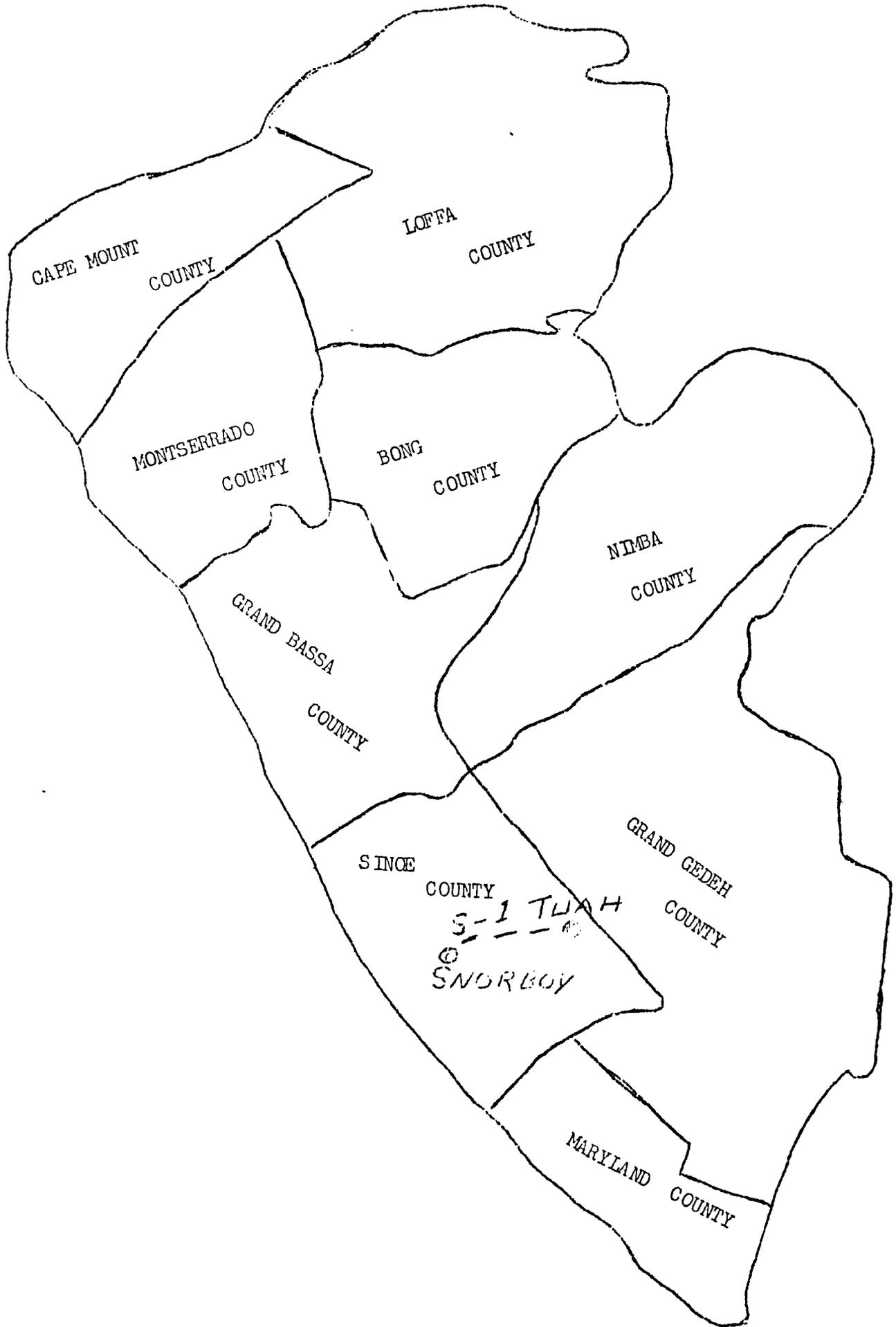
In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increases in forestry production as a direct result of the proposed road might reasonably range from \$200-400,000 in addition to a year after year market return from resulting logs and lumber, at current selling prices, in excess of \$7 million and a many-fold greater valuation in the form of finished products. Added to this also should be the \$80,000 annual value of agricultural production. In other words, a \$640,000 investment for this road on truck trail standards (or \$3.2 million to highway standards) might very well return directly to Government nearly $\frac{1}{2}$ million dollars annually in fees plus increasing Liberia's economy more than \$80,000 per year. Additionally, the proposed road would service over 2,400 rural people and greatly facilitate more timely institution of badly needed educational and health facilities.



SINOE COUNTY

S-1 Snorgboy Town—Gage Farm—Touh—44 Miles

In the line of agriculture, this road will serve more than 3,000 people living in about 900 huts, that are located in 14 different villages or towns alongside or within 1 to 2 hour's walk. The people in this area produce their own food supply, and head load large quantities of surplus, for several hours, to distant markets for sale. There is also 70,000 tappable rubber trees within the area. Based on the current average annual production per acre (of seedlings) on Liberian rubber farms, yields from 70,000 trees should approximate \$27,000 annually. The production of rice very probably exceeds 5,000 bags annually with a current market value of \$50,000. If other agricultural commodities approach a similar valuation, the total current market value of their present production, including rubber, would approximate \$125,000. Such a valuation is somewhat less than the existing, rather widely used per capita income figure for tribal farming in Liberia of \$120 per year. At the present rate of agricultural production then, the value of produce would, in about 14 years, equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in less than 3 years if constructed to adequate truck trail standards. It is also possible that, if and when this road is built, current agricultural production might soon double. This would bring an increase of about \$150,000 to the economy of the country.



SINOE COUNTY CONTINUED

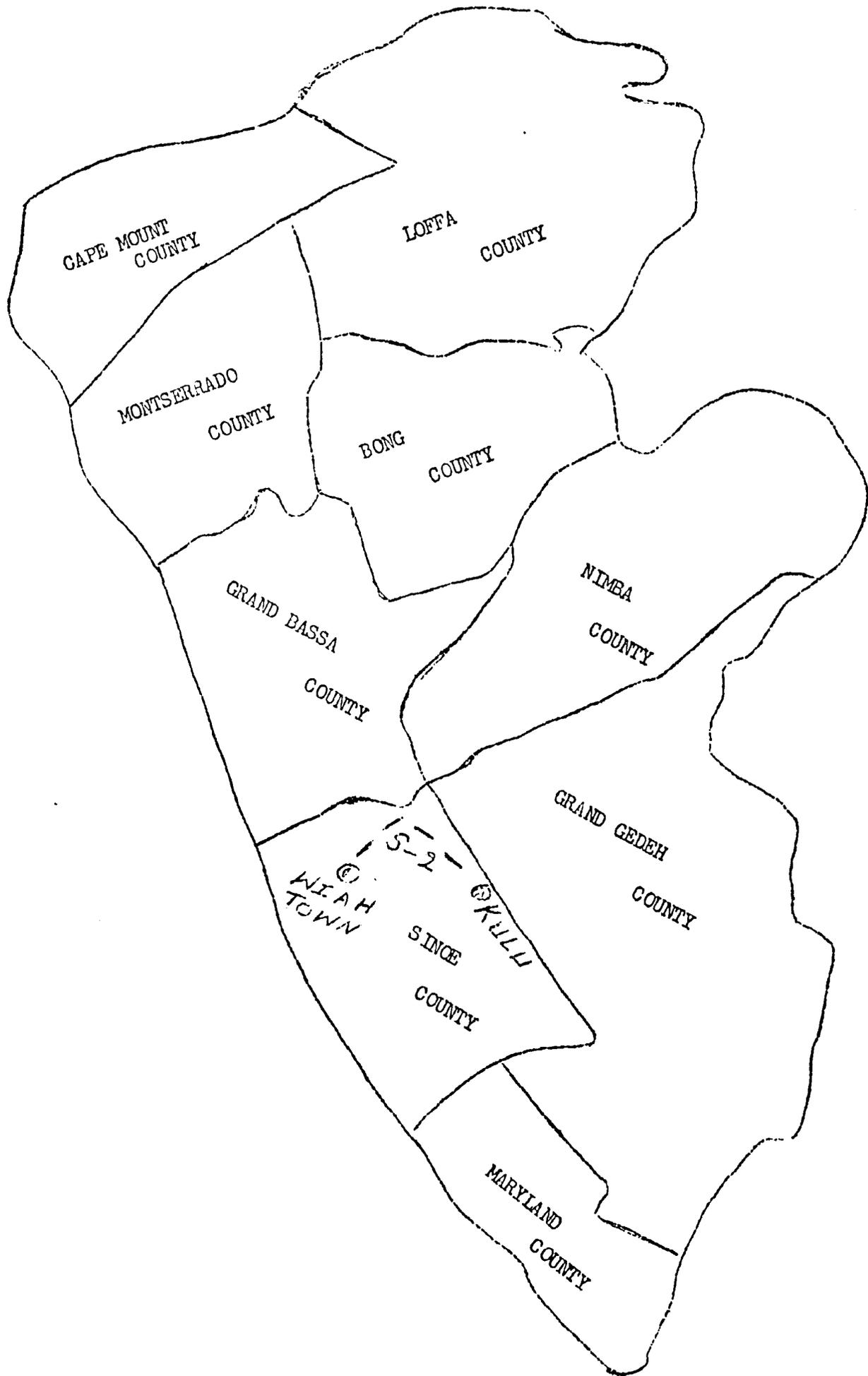
S-2 Wiahtown—Planabo—Kulu—50 Miles

Speaking agriculturally, this road will serve around 3-4,000 people living in more than 700 huts, located in 20 different villages or towns alongside or within 1 to 2 hour's walk. The people in this area not only meet their own food requirements of rice, vegetables, fruits, and palm oil, but also head load considerable quantities of agricultural produce, for several hours, to markets for sale. On this basis, their present production of rice alone very probably exceeds 7,000 bags annually with a current market value of around \$70,000. Their other agricultural production most likely would approach a similar valuation and, if so, the current market value of their present production would approximate \$140,000. Such a valuation is somewhat less than the existing, rather widely used income per capita figure for tribal farming in Liberia of \$120 per year. Present agricultural returns, therefore, would in 15 years equal the entire cost of the road if built to highway standards as presently planned by the Department of Public Works and Utilities, or in less than 3 years if constructed to adequate truck trail standards. It is also possible that, if and when this road is built, current agricultural production might soon double.

In the line of forestry, this road will open up an additional 75,000 acres of presently inaccessible forest land. If and when this road is constructed, the present gross operable timber volume within Liberia will be increased some 750-800 million board feet of which at least 37 million board feet should be of species in current demand on the world market with an equal or greater volume in species acceptable in the domestic market. The annual allowable harvest might thereby be increased around 1.8 million board feet. Increased yearly returns to Government on this basis, at existing stumpage rates, might therefore

approach \$5,400 or about 1 percent of the probable cost if built to truck trail standards not to exceed \$8,000 per mile. It should also be noted that with the inclusion of currently standard forest land rental fees of 10 cents per acre per year and the collection of the higher more realistic stumpage fees which the Bureau of Forest Conservation has already recommended, direct returns to Government might be twice as great.

In summation, annual returns in forest land rental and timber stumpage fees alone to Government from probable increases in forestry production as a direct result of the proposed road might range from \$5-10,000 in addition to a year after year market return from resulting logs and lumber, at current selling prices, in excess of \$200,000 and a many-fold greater valuation in the form of finished products. There will be also the \$140,000, annual value of agricultural production. The \$400,000 investment for this road on truck trail standards might very well return directly to Government over \$10,000 annually in fees, and possibly increase the Liberian economy by \$140,000. This road will also service some 4,000 rural people and greatly facilitate more timely institution of badly needed educational and health facilities.



EXPECTED ANNUAL RETURNS

ROAD	PRESENT VALUE			ESTIMATED INCREASE			GRAND TOTAL		TOTAL
	Acri	For.	Total	Acri	For.	Total	Acri.	For.	
B-1	\$1,800,000	0	1,800,000	1,800,000	50,000	1,850,000	3,600,000	50,000	3,650,000
B-2	400,000	0	400,000	400,000	1,500,000	1,900,000	800,000	1,500,000	2,300,000
B-3	40,000	0	40,000	40,000	0	40,000	80,000	0	80,000
C-1	300,000	0	300,000	300,000	50,000	350,000	300,000	50,000	350,000
C-2	200,000	0	200,000	200,000	0	200,000	400,000	0	400,000
GG-1	200,000	0	200,000	200,000	1,000,000	1,200,000	400,000	1,000,000	1,400,000
GG-2	80,000	0	80,000	80,000	44,000	124,000	80,000	44,000	124,000
GG-3									
L-2	100,000	0	100,000	100,000	21,000	121,000	200,000	21,000	221,000
L-4	220,000	0	220,000	220,000	300,000	520,000	220,000	300,000	520,000
L-6	280,000	0	280,000	280,000	200,000	580,000	560,000	200,000	760,000
M-1	360,000	0	360,000	360,000	0	360,000	720,000	0	720,000
N-1	180,000	0	180,000	180,000	0	180,000	360,000	0	360,000
N-2	600,000	0	600,000	600,000	0	600,000	1,200,000	0	1,200,000
N-3	320,000	0	320,000	320,000	0	320,000	640,000	0	640,000
N-5	80,000	0	80,000	80,000	500,000	580,000	160,000	500,000	660,000
S-1	125,000	0	125,000	150,000	0	150,000	275,000	0	275,000
S-2	140,000	0	140,000	140,000		145,000	280,000		285,400
TOTALS			5,425,000			9,220,000			13,945,400

ESTIMATED COST OF

ROAD	MILES	CONSTRUCTION		NO. TOWNS	NO. PEOPLE SERVED	
		Standard	Truck Trail			
B-1	75	\$3,000,000	600,000	30	15,000	
B-2	25	1,000,000	200,000	20	5,000	
B-3	25	1,000,000	200,000	12	1,000	
C-1	36	1,440,000	288,000	70	8,000	
C-2	50	2,000,000	400,000	45	6,000	
GG-1	70	2,800,000	560,000	12	3,000	
GG-2	50	2,000,000	400,000	20	2,500	
GG-3	95					
L-2	75	3,000,000	600,000	50	3,000	
L-4	110	4,400,000	880,000	20	3,000	
L-6	90	3,600,000	720,000	77	8,000	
M-1	51	2,040,000	408,000	12	10,500	
N-1	45	1,800,000	360,000	25	5,000	
N-2	15	600,000	120,000	14	17,000	
N-3	50	2,000,000	400,000	14	9,000	
N-5	80	3,200,000	640,000	23	3,000	
S-1	44	1,760,000	352,000	14	3,000	
S-2	50	2,000,000	400,000	20	4,000	
TOTALS	18	1,036	37,640,000	7,528,100	478	106,000

42