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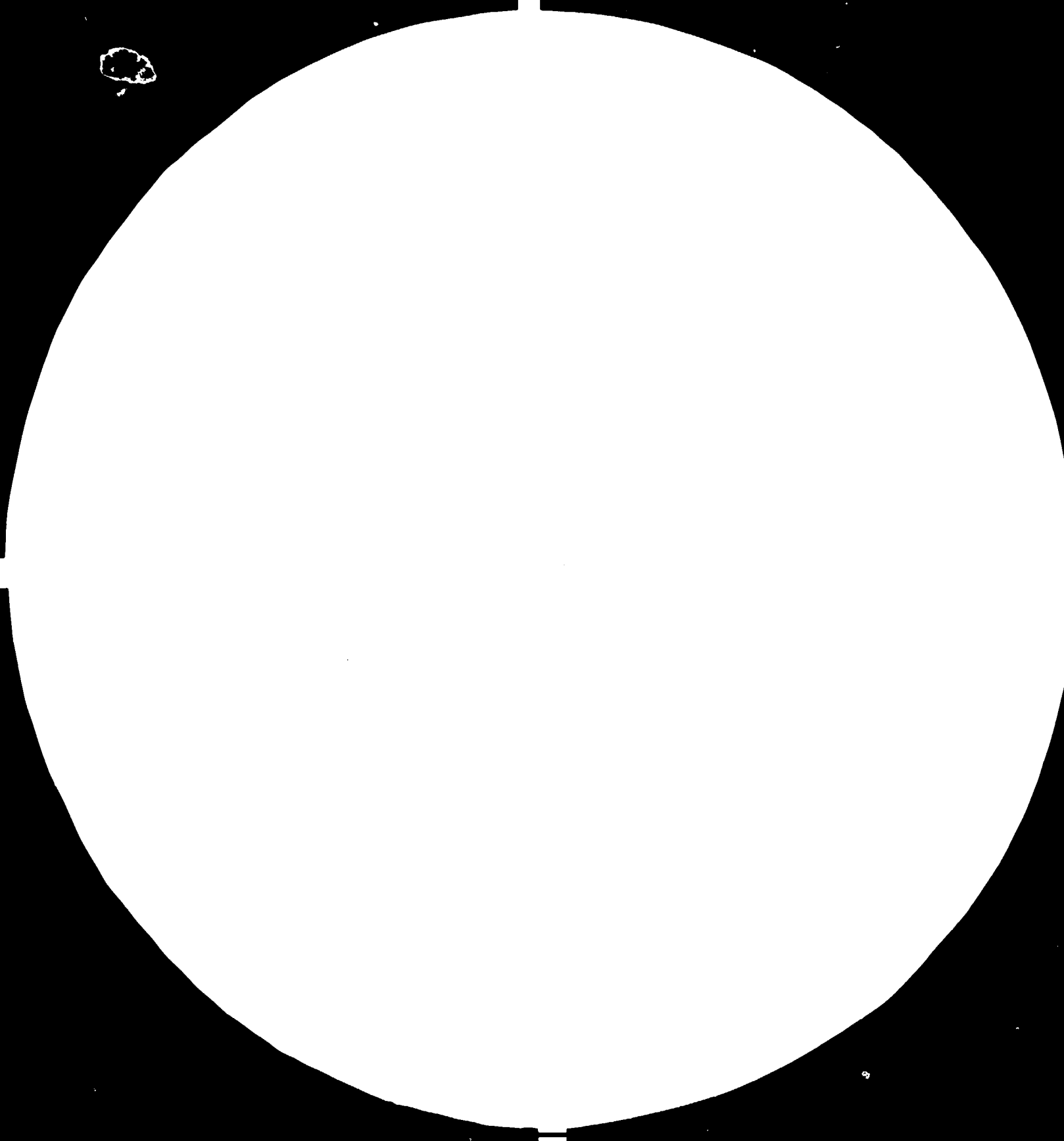

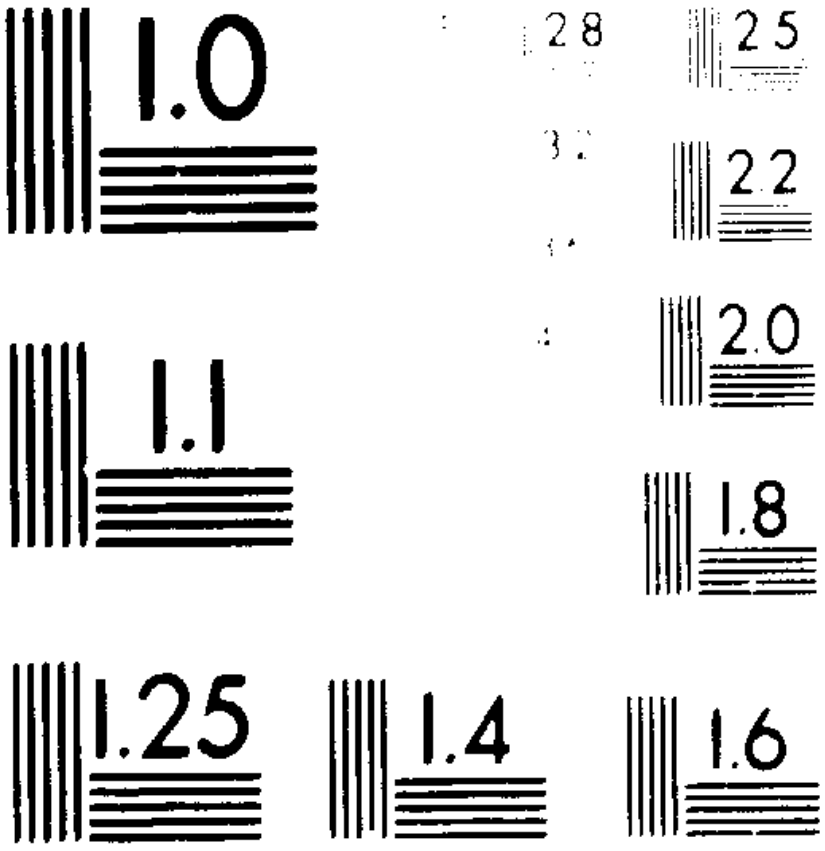

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UNITED NATIONS
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AN EVALUATION OF THE OVERALL COCONUT INDUSTRY IN AFRICA*

US/GLO/80/005

Based on the work of P. C. Catanaoan

UNIDO Consultant

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ABSTRACT

Title of project: An Evaluation of the Overall Coconut Industry in Africa
US/GLO/80/005/11-01

Duty station: ECA Secretariat Headquarters, Addis Ababa, Ethiopia

Duration of study: fifteen days (16 to 30 November 1983)

Purpose of mission: To assist the Economic Commission for Africa (ECA) Secretariat in reviewing the overall situation of the coconut industry in Africa in view of defining useful development action.

Findings: Statistics indicate that the coconut industry in Africa is stagnated and conditions of general neglect are evident. However, African resources in terms of existing coconut plantations, available lands for coconut production, available manpower and experience in farm and industrial production, as well as the existence of markets for coconut products, are assets in the further development of the coconut industry in Africa.

Recommendations: Setting up of viable coconut processing industries, suitably sized and strategically located, is recommended to catalyze the development of the industry.

A more thorough study and evaluation of the coconut industry in Africa, which will include visits to the coconut producing countries and industry-level investigation, should be undertaken.

Currency conversion: US$ 1 = Birr 2.05 (16 November 1983)

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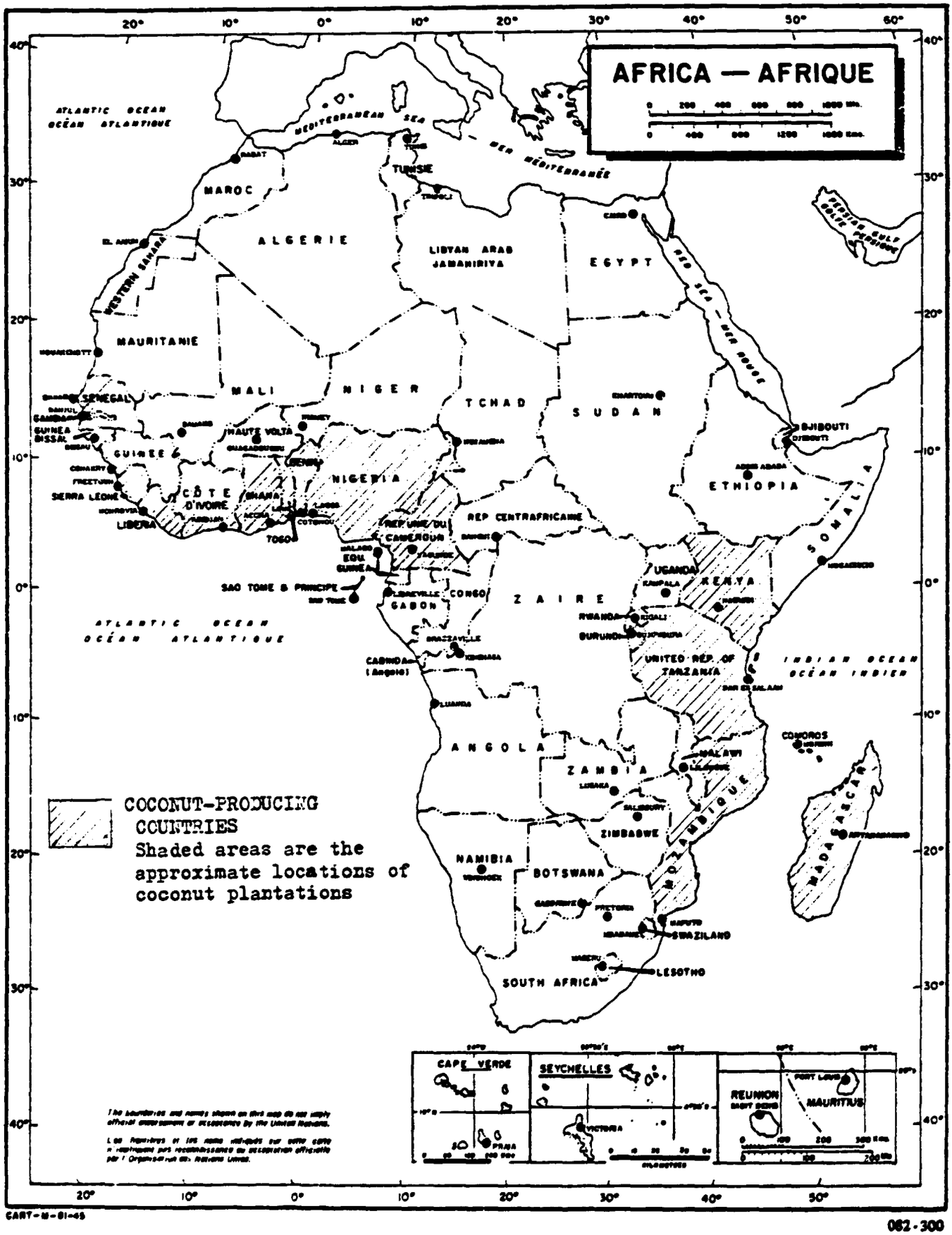
INTRODUCTION

Realizing the need to exploit the potentials of the coconut industry in Africa, the Secretariat of the Economic Commission for Africa (ECA) expressed its interest to the United Nations Industrial Development Organization (UNIDO) for the services of a coconut processing expert to assist ECA in reviewing the overall situation of the coconut industry in Africa in view of defining useful development action to follow.

In response, UNIDO assigned a coconut processing expert for a period of fiteen days, from 16 to 30 November 1983, to the Secretariat of ECA at Addis Ababa, Ethiopia. Information from the 1981 FAO Production Yearbook and 1981 FAO Trade Yearbook, and discussions with Mr. B. M. Vlavonou of the FAO/ECA Advisory Group on Food and Agricultural Industries Development in Africa, provided the basic information contained in this report.

In assessing this report, it should be borne in mind that the latest statistics used were for 1981 and the probably assumptions were made where relevant informations were not available. The depth and accuracy of this report could have been improved if there was opportunity for the expert to visit the coconut producing regions to make actual observations and assessment of the coconut industry.



MAP SHOWING COCONUT REGIONS IN AFRICA

The boundaries shown on map do not imply official endorsement or acceptance by the United Nations.

I. INFORMATION ON THE COCONUT INDUSTRY

Coconut Production

The estimated total coconut production in Africa, in 1981, was about 1,515,000 metric tons or about 2 billion nuts. The major coconut producing countries are Ghana, Ivory Coast and Nigeria on the West Coast, and Kenya, Mozambique and Tanzania on the East Coast. The coconut production statistics for Africa and the coconut producing African countries are shown in Table I.

Table 1 - Coconut Production in African Countries (1,000 MT)

Country	1969-1971	1979	1980	1981
Africa	1,466	1,463	1,494	1,515
Benin	20	20	20	20
Cameroon	2	2	2	2
Cape Verde	10	10	10	10
Comoros	69	64	53	53
Equatorial Guinea	6	7	7	7
Ghana	257	159	160	160
Guinea	15	15	15	15
Guinea Bissau	31	25	25	25
Ivory Coast	49	150	155	159
Kenya	77	85	90	95
Liberia	6	7	7	7
Madagascar	19	39	40	40
Mauritius	8	5	5	5
Mozambique	400	400	420	420
Nigeria	86	90	90	90
Sao Tome & Principe	42	34	34	36
Senegal	4	4	4	4
Seychelles	34	29	29	29
Sierra Leone	2	3	3	3
Somalia	1	1	1	1
Tanzania	310	300	310	320
Togo	17	14	14	14

Copra Production

In 1981. copra production in Africa was estimated at about 175,000 metric tons. The major coconut producing countries were Ivory Coast, Mozambique and Tanzania. Copra production, by country, is shown in Table 2.

Table 2 - Copra Production in African Countries (1,000 MT)

Country	1969-71	1979	1980	1981
Africa	150	161	172	175
Benin	3	3	3	3
Comoros	6	5	3	3
Ghana	10	7	7	7
Guinea Bissau	6	5	5	5
Ivory Coast	6	22	23	24
Kenya	6	2	9	9
Madagascar	2	5	6	6
Mozambique	59	65	68	70
Nigeria	8	10	10	10
Sao Tome & Principe	5	4	4	4
Seychelles	5	4	4	4
Tanzania	31	27	29	29
Togo	3	2	2	2

Oil Milling

From coconut oil exports statistics, it is evident that oil mills exist in Ivory Coast, Kenya, Mozambique and Tanzania. The oil milling capacity of oil mills in Kenya is about 120 metric tons per day. No information is available on the capacities in other countries. It is, however, possible that there are oil mills in other countries but whose productions were not exported and information of their existence is not available. Coconut oil exportation from African countries are shown on Table 3.

Table 3 - Coconut Oil Exports from African Countries

Country	Quantity (metric tons)			Value (£ 000)		
	1979	1980	1981	1979	1980	1981
Ivory Coast	10,377	13,071	15,500	10,225	10,300	8,800
Kenya	191	175	160	232	200	160
Mozambique	4,000	3,500	3,500	3,200	2,700	2,000
Tanzania	100	200	-	145	200	-

Desiccated Coconut

In 1975, 67 metric tons of desiccated coconuts were exported from Ivory Coast. There are no records available on desiccated coconut from 1976 to the present.

Exportation of Coconuts (in shell)

In 1981, 15.610 metric tons of coconuts (in shell), valued at about $1,825,000 were exported from African countries. Details of these exports are shown in Table 4.

Table 4 - Coconut Exports from African Countries

Country	Quantity (metric tons)			Value ($ 000)		
	1979	1980	1981	1979	1980	1981
Ivory Coast	13,941	14,000	15,000	1,315	1,700	1,600
Kenya	1,031	683	500	304	273	180
Madagascar	12	-	-	3	-	-
Seychelles	97	282	110	45	93	45

II. IMPORTS OF COCONUT PRODUCTS AND VEGETABLE OILS

A. Coconut Products

Coconut Oil

In 1981, African countries imported 32,261 metric tons of coconut oil, valued at about $24,964,000. Coconut oil imports, by country, are shown in Table 5.

Table 5 - Coconut Oil Imports by African Countries (1981)

Country	Quantity (metric tons)			Value ($'000)		
	1979	1980	1981	1979	1980	1981
Africa	19,194	28,680	32,261	19,859	26,776	24,964
Algeria	6,179	4,270	6,500	7,530	4,365	6,600
Ethiopia	363	112	700	330	85	450
Lybia	274	846	200	449	1,642	360
Madagascar	235	36	36	181	42	42
Malawi	365	194	190	386	200	350
Mauritius	205	180	340	230	190	300
Moroco	13	57	57	15	65	65
Reunion	24	36	40	28	40	43
Seychelles	40	16	16	69	21	21
Somalia	59	3,000	4,500	56	330	4,600
South Africa	9,280	11,368	13,000	8,326	8,316	7,300
Sudan	259	171	430	338	229	380
Tanzania	300	830	800	270	640	530
Zambia	422	497	500	451	624	520
Zimbawe	-	645	-	-	529	-

Desiccated Coconut Imports

Desiccated coconut imports by African countries was 3,852 metric tons valued at $6.066,000. The major importers are Egypt and South Africa. Desiccated coconut imports by country are shown in Table 6.

Table 6 - Desiccated Coconut Imports by African Countries

Country	Quantity (metric tons)			Value ($ 000)		
	1979	1980	1981	1979	1980	1981
Africa	3,737	3,836	3,852	4,778	6,578	6,066
Cameroon	3	-	-	5	-	-
Cape Verde	-	1	-	-	2	-
Egypt	1,519	1,203	1,500	1,812	2,882	3,300
Kenya	3	17	-	6	29	-
Lybia	118	64	-	121	57	-
Reunion	43	44	52	87	98	106
South Africa	2,051	2,498	2,300	2,737	3,414	2,600
Zambia	-	9	-	-	30	-

Coconut Imports

In 1981, 4,591 metric tons of coconuts (in shell) valued at $ 1,113,000 were imported by African countries. The imports of the countries are shown in Table 7.

Table 7 - Coconut Imports by African Countries

Country	Quantity (metric tons)			Value ($ 000)		
	1979	1980	1981	1979	1980	1981
Africa	3,011	3,777	4,591	667	919	1,113
Mauritius	1,500	1,724	1,771	370	509	578
Moroco	79	-	-	13	-	-
Reunion	110	131	131	33	39	32
Senegal	487	1,212	1,689	90	175	121
South Africa	920	708	1,000	180	190	282
Sudan	5	-	-	11	-	-

B. Vegetable Oil Imports by Selected Countries

Vegetable oil imports by coconut-producing countries and their neighbouring countries are shown in Table 8.

Table 8 - Vegetable Oil Imports by Some African Countries ($ 000)

Country	1978	1979	1980
Gabon	5,255	5,007	4,406
Ghana	12,600	4,175	4,400
Ivory Coast	2,038	3,762	4,260
Kenya	30,137	34,863	45,376
Madagascar	5,388	15,061	12,911
Nigeria	97,010	192,000	232,000
Senegal	6,262	4,889	18,225
South Africa	20,210	23,254	29.586
Tanzania	5,270	3.593	5,06

Gabon, Ghana. Kenya. Madagascar and Tanzania are net importers of vegetable oils. the rest are net exporters.

III. POPULATION AND LAND USE

A. Population

The population of coconut-producing countries and the number of persons engaged in agriculture are shown in Table 9.

Table 9 - Population of Coconut-Producing Countries (1981)
(thousands)

Country	Total	In Agriculture	Percentage in Agricutlture
Benin	3,640	1,656	45.5
Cape Verde	329	183	55.6
Comoros	369	233	63.1
Ghana	12,061	6,098	50.5
Guinea	5,147	4,098	79.6
Guinea Bissau	583	476	81.6
Ivory Coast	8,298	6,532	78.7
Kenya	17,148	13,213	77.1
Madagascar	8,932	7,406	82.5
Mozambique	10,757	6,818	63.4
Nigeria	79,680	41,686	52.3
Sao Tome & Prin.	86		
Tanzania	18,510	14,869	80.4
Togo	2,705	1,820	67.3

B. Land Use

There are about 47.5 million hectares of arable land in the coconut-producing countries, as shown in Table 10. The coastal portion of these lands may be used for expanding coconut plantations.

Table 10 - Land Area and Land Use (thousand hectares)

Country	Land Area	Arable Land and Perm. Crops	Arable Land	Permanent crops
Benin	11,067	1,975	1,350	445
Cape Verde	403	40	38	2
Comoros	217	91	76	16
Ghana	23,002	2,760	1,090	1,670
Guinea	24,586	1,570	1,500	70
Guinea Bissau	2,800	285	255	30
Ivory Coast	31,800	3,880	2,740	1,140
Kenya	56,925	2,275	1,790	485
Madagascar	58,154	3,000	2,510	490
Mozambique	78,409	3,080	2,850	230
Nigeria	91,077	30,385	27,850	2,535
Sao Tome & Prn	96	36	1	35
Seychelles	27	5	1	4
Tanzania	88,604	5,160	4,110	1,050
Togo	5,439	1,420	1,355	65
		Total Arable Land -	47,516	

IV. EVALUATION OF THE COCONUT INDUSTRY SITUATION

A. Coconut Production

Based on FAO coconut production statistics, coconut production in Africa has increased by only 3.3 per cent from 1971 to 1981. In many of the countries, productions have decreased. An exception to the general trend is Ivory Coast. where there was an increase of about 300 per cent during the same period. It is assumed that the increase in coconut production in Ivory Coast is due to the existence of coconut processing plants, better management of coconut estates and efforts to develop the coconut industry. Poor performance in coconut production can be due to:

1. Low fertility of soil:
2. Inadequate farm maintenance:
3. Trees are too old:
4. Little or no replanting programme;
5. High percentage of uncollected (unaccounted) nuts;
6. Effects of coconut pests and diseases.

Guinea Bissau, Cape Verde and Guinea produced about 50 million nuts in 1981 which is equivalent to about 10,000 metric tons of copra. The combined production of the three countries can sustain the operation of a medium-scale oil mill and refinery which can be located in Guinea Bissau. Possible external market is Senegal.

Sao Tome and Principe produced about 36 million nuts in 1981. A small-scale oil mill and refinery can be established in Sao Tome. Possible external markets are Gabon and Cameroon.

Madagascar produced about 40 million nuts while Comoros produced about 53 million nuts in 1981. Each of these countries can sustain a medium-scale oil mill and refinery with external markets in mainland Africa.

Ghana has produced about 160 million nuts while Nigeria has produced 90 million nuts. If it has not yet been done, coconut processing plants should be set up in these countries, possibly oil mills and refineries or wet-processing plants.

B. Copra Production

In 1981, only about 57.7 per cent of coconut production in Africa were converted to copra. Assuming that there is no other industrial processing of coconuts, this is a relatively low figure. Table 11 shows the copra production performance in each of the countries.

Table 11 - Copra Production Performance in African Countries (1981)

Country	Nut Production (1000 MT)	Potential Copra Production (1000 MT)	Actual Copra Production (1000 MT)	Percentage Actual Production %
Africa	1,515	303	175	57.7
Benin	20	4	3	75.0
Cape Verde	10	5	0	0
Comoros	53	10.6	3	28.3
Ghana	160	32	7	21.9
Guinea	15	3	0	0
Guinea Bissau	25	5	5	100
Ivory Coast	154	31.8	24	75.5
Kenya	95	19	9	47.4
Madagascar	40	8	6	75
Mozambique	420	84	70	83.3
Nigeria	90	18	10	55.6
Sao Tome & Prin.	36	7.2	4	55.6
Seychelles	29	5.8	4	68.9
Tanzania	320	64	29	45.3
Togo	14	2.8	2	71.4

Benin, Guinea Bissau, Ivory Coast, Madagascar, Mozambique, and Togo are, relatively, high percentage producers. This is probably due to existence of oil mills in these countries or their proximity to countries with oil mills, and possibly due to an active copra market. Kenya and Tanzania, inspite of the existence of oil mills in these countries, made less than 50%. Low copra prices and lack of copra making facilties are the causes of low copra production in Kenya.

The most probable reasons for low copra production are:

1. Inadequate or lack of copra dryers:
2. Low copra prices:
3. High cost of producing copra:
4. Lack of or unstable copra market:
5. Lack of labour manpower to harvest nuts and produce copra:
6. Existence of preferred employment opportunities.

C. Copra Milling and Oil Processing

No information is available on the existence, capacities, and situation of oil milling and processing plants. If the assumption that oil mills exist only in Ivory Coast, Mozambique, Kenya, and Tanzania, is correct, then the distance of these mills to many of the coconut producers makes transport cost too high and transporting of copra inconvenient. This reason probably is the cause of low copra production in distant countries.

Due to high cost of transporting copra, the establishment of smaller-scale oil mills is recommended, provided that the cost of marketing will not offset the savings in the cost of transporting the raw material. For such small plants, refined oil or other consumer products for the local or neighboring markets should be produced, otherwise a collective marketing scheme for exports should be arranged. The advantages of producing consumer products for the local market are the high added value and low marketing costs.

D. Desiccated Coconut

No information is available on the capacity and situation of the desiccated coconut plant in Ivory Coast. Since there are no export figures since 1976, it is assumed that the operations of the plant had been suspended. The reasons for suspending operation, if true, are not known.

African countries imported 3,852 metric tons of desiccated coco- valued at about $6 million in 1981. The demand for desiccated coconut by these countries would support the production of 20 metric tons of desiccated coconut per day from a plant capacity of 120,000 nuts per day. This should make operations of the Ivory Coast plant viable.

E. Importation of Coconut Oil and Other Vegetable Oils

In 1981, coconut oil imports by African countries was 32,621 tons valued at $24,964,000 while the exports of coconut oil was about 19,000 tons valued at about $10,980,000. Assuming that the imports and exports were with non-African countries, Africa's net trade loss was about $10 million. Africa has the the potential to be self-sufficient in vegetable oils.

The total imports of vegetable oils by coconut-producing countries and their neighboring countries in 1980 (the latest available statistics) was valued at $356,250,000. Part of the non-coconut oil vegetable oil imports can be substituted with coconut oil. This is a potential market for coconut oil.

F. Population and Employment in Agriculture

In Table 9 it is shown that at least 70% of the population in the the coconut-producing countries are dependent on agriculture. The labor needs for the various phases of the coconut industry: coconut development, Harvesting of nuts, copra making, copra trading, and processing will create many employment opportunities since the industry is highly labor-intensive.

G. Availability of Land

According to FAO statistics there are about 50 million hectares of arable land in the coconut-producing countries. Some of these lands are probably in coastal areas and suitable for coconuts. If 2% of these lands are planted to coconuts, it will mean about 1 million hectares additional land in coconuts. The potential production will be 5 billion nuts per year. When made into copra, the production potential is about 1 million metric tons and an export value of about $500 million a year.

V. RECOMMENDATIONS

On the basis of the above evaluation of the overall coconut industry, the following are recommended:

1. Determine the needs and evaluate the feasibility of rehabilitating and fertilizing existing coconut plantation as means to increase coconut production. Experience in some countries have demonstrated that clearing and weeding of coconut farms can increase yields by as much as fifty per cent after one year. Application of about two kilos of suitable NPK fertilizer per tree per year can increase production to about sixty nuts per tree per year after two years and as much as 100 nuts per tree after five years with traditional tall coconut varieties.

2. Determine the needs and evaluate the feasibility of setting-up centralized copra drying stations or copra centrals as means for increasing copra production. Copra centrals will provide a ready market for coconuts for the farmers and will encourage greater efforts to harvest the nuts and discourage home consumption and wastage of nuts.

3. Determine the actual needs and evaluate the feasibility of setting-up oil mills and refineries in the following countries:

Guinea Bissau - to process copra from Cape Verde, Guinea and Guinea Bissau	- 25 MT copra per day
Sao Tome - to process copra from Sao Tome and Principe	- 15 MT copra per day
Comoros - to process copra from Comoros and Seychelles	- 50 MT copra per day
Madagascar - to process local copra	- 25 MT copra per day
Nigeria - to process local copra	- 50 MT copra per day
Ghana - to process local copra	- 100 MT copra per day

Assuming that there are no existing oil mills in these countries.

4. Study the feasibility of reviving operations of the desiccated coconut plant in Ivory Coast.

5. Study the feasibility of establishing a coconut wet-processing plant in Nigeria. The wet processing plant can produce coconut cream, high-quality coconut oil, edible coconut protein extract, and edible coconut flour. The coconut protein which has a food value to cow's milk, can be processed into various high-value food products, including dairy milk substitutes. The coconut flour has a protein content of about 14 per cent. With addition of small quantity of wheat flour, it can be made into cookies and biscuits. A mixture of twenty per cent coconut flour and eighty per cent wheat flour can be baked into almost all kinds of bakery products normally using pure wheat flour. The coconut cream can be concentrated and canned or spray-dried into powder. There is a market for coconut cream in the United States and the Middle East.

6. Study the feasibility of opening up new coconut plantations in available and suitable lands, not only in traditional coconut-producing countries but also in other African countries.

It is further recommended that a follow-up study be conducted to identify the actual problems, discover the real needs and evaluate the present situation of the coconut industry in each of the countries. The study should include visits to the countries and industry-level investigations. The information and data gathered from this study will provide the basis for subsequent pre-investment feasibility studies.

PERSONS WITH WHOM STUDY HAS BEEN DISCUSSED

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