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Report of the

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ICD RECONNAISSANCE MISSION

to

SOMALIA

24 - 30 September 1984

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Report of the

ICD RECONNAISSANCE MISSION

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INTRODUCTION

At the request of the USAID Mission in Mogadishu, an ICD reconnaissance mission visited Somalia from 24 to 30 September 1984. The mission explored possibilities for the Council to assist Somalia with its agro-industrial development priorities.

The mission was composed of:

Walter W. Simons, Executive Director of ICD

V. E. Gale, ICD Senior Associate

The mission's Terms of Reference were:

(A) Within the context of the national development plan, USAID priorities, and ICD criteria to review and assess agro-industrial development priorities in order to determine possible focal points for ICD assistance, with particular reference to the edible oil industry.

(B) To discuss with relevant Government of Somalia (GOS) and USAID officials modalities for any eventual ICD activities in Somalia, including cost-sharing.

To achieve these objectives, the mission followed an itinerary (Annex I) which included contacts with senior USAID and Government officials, as well as representatives of other multilateral and bilateral agencies involved in agro-industrial activities. In addition, special efforts were made to contact executives of private sector enterprises, including local representatives of ICD member companies.

SUMMARY

Somalia is one of the poorest and one of the most "aided" developing countries in Africa; it is also a country where important changes are taking place that should speed the pace and improve the effectiveness of economic and social development.

The Government has turned from centralized planning and economic controls and has instituted policy changes to liberalize the economy, particularly by providing incentives for agricultural production and greater private sector involvement in many phases of the national economy. The Government has also shown its intention to put public sector projects on a sound commercial footing and to use management contracts and joint ventures to attract the managerial resources needed. These changes are consistent with the views of the IMF, World Bank, USAID, and other major donors.

With these positive changes in the policy and planning environment, the mission was optimistic that the Council might make contributions to Somalia's economic development that would be consistent with the Council's criteria and make effective use of the resources available through the membership.

The misssion identified four areas for possible GOS/USAID/ICD cooperation:

1. To help establish a commercially viable integrated edible oil industry, capable of achieving self-sufficiency in approximately 5 years.

2. To assist in the expansion of the fruit and vegetable production, processing and packaging industry, with particular attention to the export market.

3. To facilitate the availability of improved seed for farmers through support for the introduction and adaptation of high-yielding varieties of oil seed crops, of cereals, vegetables and other agricultural products of primary importance.

4. To assist the livestock sector, especially through training and communications support for animal health.

The mission agreed with GOS and USAID officials that assistance to the edible oil industry should have the highest priority for initial cooperative activities. Edible

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ACKNOWLEDGEMENTS

The mission thanks the staff of the USAID mission in Mogadishu for the very comprehensive program of contacts with Government, aid agency, and private sector officials. In particular, Fred Witthans, Program Economist, and Mohammed Sherrieh, Program Assistant, contributed a great deal of their time to the mission's work. The mission was also pleased with the importance which the USAID mission management attached to the possibilities for ICD assistance.

The mission was further assisted by advice, information and field contacts provided by ICD member companies, including Alfa-Laval, Booker/McConnell, Buhler Brothers, Ciba-Geigy, HVA, and Unilever.

oils are an important item in the national diet and are closely linked with agricultural production and the promotion of small- and medium-scale agroindustries in both rural and urban areas. Two-thirds of the country's supply of edible oil is currently imported. All sources agree that Somalia could be self-sufficient in edible oils within the next five years.

By promoting an integrated agro-industrial effort with close linkages to national development priorities including agricultural research, policy reforms, infrastructural and human resource development and financial resources, increased agricultural production, processing and marketing can better be achieved.

This will require a public/private sector partnership which fully utilizes the traditional entrepreneurial capabilities of the Somali people.

Initial Project Proposal

The mission has recommended an initial GOS/USAID/ICD cooperative project to assist the national edible oil industry in three phases.

1. An initial short research phase would be necessary to clarify options for integrating the industry and to develop essential information.

2. The second phase would be to develop a national strategy for achieving self-sufficiency in edible oils through a commercially viable industry.

   This strategy would be prepared by a workshop which would bring together the key public and private sector officials, local business leaders and experts from international development organizations. ICD would create an advisory group of senior experts from its member companies with expertise in all stages of the edible oil industry. This advisory group would help guide the workshop discussion and assist in formulating a plan of implementation and related recommendations.

   The workshop would utilize an agribusiness system analysis, prepared by ICD, to evaluate the various options in raw material production, processing, distribution and marketing within the context of commercial viability and on an integrated basis.

3. The results of the workshop would be the basis for policy revisions, technology transfer, training, etc. as necessary for the third phase of implementation. ICD would also consider ways to assist specific implementation needs through the advisory group and other cooperative activities.

The mission also discussed modalities for cooperation with GOS and USAID officials. It was agreed that pending ICD endorsement of the proposed project as well as GOS and USAID concurrence, an official request and project plan would be prepared by early 1985. Project responsibilities, including cost sharing, could be determined according to the ICD's usual arrangements with cooperating organizations.

BACKGROUND

Political

The Democratic Republic of Somalia was established on 1 July, 1960, incorporating the former British Somaliland Protectorate and the Italian Trust Territory of Somalia.

A revolution in 1969 led to a period when a Military Government sought to bring about economic transformation through "Scientific Socialism" under a Revolutionary Council. However, following a referendum n 1979 the President of the Republic, H.E. Major General Mohammed Siad Barre, introduced a new constitution providing for an elected People's Assembly which met for the first time in June 1980.

Recent trends have indicated a genuine desire on the part of Government to liberalize the economy and to examine how stability and growth might be achieved by better utilization of private sector resources.

Physical

The country covers an area of 637,000 sq. kilometers forming the "horn" of Africa. It has the longest coastline of any country on the continent, extending from northern boundaries with Djibuti on the Gulf of Aden to its southern boundary with Kenya 3,200 kilometers away. The long western boundary with Ethiopia has been the source of numerous disputes culminating with war between the two countries in 1977-78.

The country can be divided roughly into three main ecological zones: the arid plains and range-lands of the north and center; the riverine areas served by the two

major rivers, the Shabelli and the Juba, which rise in the Ogaden and traverse the country to the sea; and the mountainous areas of the north. It is estimated that 80% of the country is too dry for reliable cropping as the annual rainfall is only 200 mm or less. It is this rangeland which supports herds of camels, cattle, sheep and goats, supplying milk, meat and other produce to a population of some 4 million people and accounting for 70% to 90% of the foreign exchange earnings of the country.

Approximately 50,000 families are engaged in livestock production and about 200,000 families in crop production either on a subsistence basis or on small family-owned farms.

Of the 700,000 ha. of cultivatable land 540,000 is used annually for rain-fed agriculture, particularly sorghum and sesame. Twelve thousand hectares are under flood irrigation, producing maize, cotton, cowpeas, sesame and other oil seeds, and 50,000 ha. under controlled irrigation, growing sugar cane, bananas, citrus and other fruit and vegetable crops. The average rainfall is between 500-600mm per year in the inter-riverine areas, decreasing to 300-400mm further south. It is spread over two rainy seasons: the "Gu" season from April to July receives about 70% of the total rain, and the "Dayr" season, between October and December, when the remaining 30% falls. However, precipitation varies widely among regions and there is consequently a large variation in crop yields during a single season and a concomitant movement by nomadic pasturalists in the continual search for fresh grazing.

The fisheries sector comprises two distinct parts, the coastal fishing in the inshore waters which accounts for between 4,000 - 11,000 tons of fish landed annually, and the deep sea catches operated by foreign crews.

THE ECONOMY

The Past

Economic development must be judged against a harsh background of limited natural resources and a variable climate dominated by frequent droughts.

Somalia is one of the poorest countries in the world with a per capita income of less than SUS 300. per year. However, they are a fiercely independent people and, as Government found in the 1970's, cannot be controlled by command, as the producers, both the nomadic herdsmen and farmers, are usually beyond effective central control. The economy of

the country therefore has remained largely one based on private trading, extending back through history to the trading in Frankincense and Myrrh in biblical times.

Food production and industrial output stagnated in the 1970's. By 1980 the annual growth in the productive sector was only about 1% per year, while in the public services sector it was nearly 7%, reflecting increased Government employment. Within the productive sector the average growth was 2.7% in livestock, minus 3% in crop production, and minus 2% in industry.

A decline in crop production and an even greater decline in marketed production had a negative effect on the balance of payments. Food imports increased sharply while the volume of banana exports (the other major foreign exchange earner) fell.

The turning point for both the budget and balance of payments was precipitated by the 1977-78 border conflict with Ethiopia. The conflict had two immediate consequences: Government expenditures (mainly for defense) rose sharply, while foreign financing of the budget dropped by 40%. Although foreign financing was resumed in 1979-80, the financial gap widened dramatically in 1979 and remained so into 1980. This resulted in deficit financing which led to a sharp rise in the rate of inflation -- from 10% in 1979 to 59% in 1980.

The Present

In January 1980, the Government entered into its first stabilization program with the IMF. In July 1981, and later in 1982, the Government entered into a second and third program to stabilize the economy. Partly as a consequence of these Government policy measures, and partly owing to good weather and other factors, the budget deficit was substantially reduced in 1981 and the rate of inflation dropped to 44.8%. Under the stand-by arrangement with IMF, the currency was devalued in June 1981 from 6.3 So:Sh/US $1 to 12 So:Sh/US $1. At the same time, producer prices for bananas were doubled and growers benefitted from devaluation. Livestock exporters also made significant gains and the Government liberalized private sector imports.

In July 1982, a new program was agreed upon to cover the period to December 1983 and the currency was further devalued to 25 So:Sh/US $1. The tightening of fiscal and monetary policies was accompanied by the liberalization of pricing and marketing arrangements, agricultural producers

being allowed to market their produce freely at wholesale and retail levels at market-determined prices, and exporters were permitted to use the foreign exchange in their external accounts for imports.

Food imports declined as agricultural production stimulated by improved prices and good weather conditions satisfied a greater part of the domestic demand than in previous years.

Aid and Trade

Since gaining independence, Somalia has been one of the most "aided" countries in the world, and inflows of development assistance have provided most of its investments. However, although investment resources were being pumped into the economy at a healthy rate, the desired growth of output was still not realized. In many cases, lack of basic information, difficulties in coordination and communication, and the presence of a multiplicity of donors was more than the embryonic planning and decision-making institutions of the Government could cope with. Added to this was a complicating factor, in that trained people had a ready market in the Arab Gulf states at pay levels far above those available in Somalia.

Nevertheless, aid has not slackened and today there are over 25 different donor organizations, either multilateral or bilateral, supporting developments to the extent of $US 247 million with the planned extension to $US 698 million in 1985-86. Over 100 of these projects are concerned with agriculture. Sometimes assistance in one sector may have unexpected repercussions in another. For example, large shipments of aid from several donor nations may have constituted a disincentive to agricultural development.

Trade between Somalia and the Arab Gulf states, mainly in live animals, has been maintained for centuries. However, in the light of recent experience in the livestock sector, the Government may be reluctant to allow their exports to be dominated by one market. Livestock exports, which are Somalia's primary source of foreign exchange, were suspended by the Saudi Government officially because of suspected rinderpest disease. Although this has been carefully examined and proved to be incorrect, exports of live animals have still not been entirely resumed. The Saudis have lifted the embargo as far as sheep and goats are concerned, but have not yet given approval for the trade in cattle to be resumed.

Today the affluent markets in these oil-rich countries welcome all the other food products which Somalia can export. In the opinion of the IMF, the domestic economy

should be organized towards these opportunities which offer the best prospects for self-reliant growth.

There is also a good export trade with Italy in bananas and citrus fruits, which were both introduced by the Italians under the "Trust Territory" arrangements prior to independence. There was a marked decline in this trade in the 1970's, but it has been revived since 1980 and Italian organizations are showing an increasing interest in supporting joint venture projects and, in fact, in direct private investments in export crops. The Italian Government is also giving strong support to the University Faculty of Agriculture in Mogadishu and through post-graduate training at the University of Florence.

PRIORITIES FOR DEVELOPMENT

General

World Bank and IMF studies conducted over recent years have concluded that basically there were four main areas in which the Government needs to take immediate action.

- To continue the tight restraint on credit and monetary expansion through improvements in the balance of payments and external debt management;

- To initiate a realistic and viable public investment program which emphasizes quick yielding projects and programs aimed at rehabilitating existing capacities;

- To create investment opportunities which will improve incentives to stimulate private sector initiatives and mobilize resources, including savings from workers abroad;

- To prepare, as a matter of urgency, medium term programs for increasing the production of commodities, for both export expansion and import replacement.

It was also recommended that all of these policy reforms should be designed to attract resources to, and improving the efficiency of, the agricultural and agro-industrial sectors, as agricultural development constitutes the country's greatest hope for economic growth.

Agriculture

The Government has made determined efforts to act on these recommendations and decided that the main objective for the agricultural sector for 1984 is food self-sufficiency.

Priority will be accorded to projects which will provide the basic requirements for production or strengthen those already in existence. Steps will be taken to insure that the majority of private sector agricultural producers will have better access to essential inputs, extension services, and credit.

The 1984 agricultural development plan will be growth-oriented, and the following important elements of strategy will be implemented:

(a) Adopt marketing and pricing policies which will encourage growth in production, raise rural living standards and generate employment opportunities in the agricultural sector.

(b) Give priority to existing under-utilized facilities and completion of investment projects which, with relatively low funding inputs, can yield quick results.

(c) Expand the area under controlled irrigation and improve the efficient use of water in existing irrigation projects through rehabilitation of irrigation networks.

(d) Expand and encourage rain-fed farming by private farmers through an appropriate pricing policy for farm products.

(e) Initiate a research program to develop cropping patterns and agricultural practices which optimize the use of land and water resources.

(f) Strengthen extension services backed by well-organized technology support including effective linkages with research programs.

The following table shows the actual production for the major crops over the last two years and the target figures set for 1984.

Table I

Agricultural Production 1982-1984

(gross value in millions of Somali schillings at constant 1980 prices)

	1982		1983		1984	
	Production (tons 000)	Gross Value	Production (tons 000)	Gross Value	Target (tons 000)	Gross Value
Sorghum	235	282	120	144	230	276
Maize	150	180	235	282	210	252
Rice	20	60	2.8	8	18	54
Beans	15	24	20.8	33	20	32
Sesame	57	171	59.5	179	50	150
Groundnuts	3.2	6	2.6	5	4	7
Cotton	4.7	14	4	12	5	5
Sugar cane	535	32	500	30	650	39
Bananas	75	59	85	70	105	86
Other fruits & Vegetables	102	213	83	174	102	213
Total		1041		937		1124

[source: Annual Development Plan, Agricultural Sector, 1984]

In order to achieve these targets, the Government has taken steps to reform the appropriate public sector enterprises. By emphasizing better management of state farms and agricultural enterprises, the government hopes to increase their long-term economic viability.

A process of decentralization of responsibilities for management will be introduced and, where necessary, skills will be imported through management contracts. A good working example of this is the Juba Sugar project (JSB) where Bookers Agriculture International, under a management contract with the Ministry of Industry, successfully operates a 8,000 ha. sugar cane complex (4,000 ha. developed so far) under controlled irrigation. This project is also notable for the efforts being made to train local staff in certain key crafts and in middle management.

There are 29 public sector projects which are concerned with crops and irrigation. They are financed by both domestic (29.5%) and foreign (65.5%) sources. Of this total, 62.9% of the funds are to be spent on public investments, 5.1% on technical assistance, and 32% on supplementary projects as shown in the table below.

TABLE II

Investment Program

	Planned outlay (So.Sh.000)	(US $000)	Percent of total outlay
Foreign sources of which:	736,739	(29,469)	65.5
Grant	345,994	(13,839)	30.8
Loan	390,745	(15,629)	34.7
Domestic sources of which:	331,565	(13,762)	29.5
Gov't budget	309,565	(12,382)	27.5
Other	22,000	(880)	2.0
To be funded	56,550	(2,262)	5.0
Total	1,124,854	(44,494)	100

*(calculated at 1984 value of US$ 1 = 25.00 So.Sh)

[source: Annual Development Plan, Agricultural Sector, 1984]

Water

Availability of water, the country's scarcest resource, remains limited from the lack of an organized management system for water allocation. There also appears to be lack of coordination within or between Ministries related to national water supply objectives. In rural areas, poorly maintained infrastructure has led to choked irrigation channels and excessive waste resulting in inefficient water use. However, the Government is in the process of recruiting a water management expert and is reported to be considering "water-use charges" to support plans for rehabilitating irrigation networks and expanding the area under controlled irrigation.

Research

Research activities are also uncoordinated, particularly in the livestock sector where there is a tendency to respond to specific needs in particular units only. There is no comprehensive research program to guide development either in the livestock sector or in the crop field, where the research program is also fragmented and is more a collection of activities developed by individual scientists. However, through the assistance of ISNAR (International Service for National Agricultural Research), efforts are under way to develop well-coordinated and carefully integrated research programs which will make the best use of the available resources. These reforms should reflect the interdependence of various sectors and strengthen the ties between research and extension services as they will be working jointly to test new practices in farmers' fields for practical economic viability, to study sociological conditions in the farming community, and to identify the main production and economic restraints.

Improving Input Supply and Use

These measures include steps taken to ensure that the import of fertilizers is adequate to meet the anticipated demand in 1984 and that the distribution is streamlined. At present, fertilizers are used mainly by the banana growers, on sugar plantations and for rice cultivation. However, there is also a growing demand from private farmers producing crops under flood irrigation and these have been included in the present total requirements. A urea factory is under construction, but it is not expected to begin commercial operation until late in 1984 or 85. The entire supply of fertilizers, estimated at 14,630 tons, will therefore have to be imported.

Most of the seed presently planted by farmers is selected from their own stocks of local varieties. However, during 1983 a small quantity of improved seed was produced and distributed from the FAO-supported "Seed Production and Improvement Project" based near Afgoi. The future objective is to multiply improved seed and improve processing and testing techniques.

Other inputs include spare parts and mechanical equipment which [illegible] be available through a "package deal" recommended by the extension services and covered by credit facilities from the Government. As irrigation is to receive high priority, special emphasis will be placed on spares and equipment needed for this purpose.

Trade

Credit facilities for farmers are provided through the Somalia Development Bank, which is responsible for the medium and long term loans for investments and development purposes. In 1982 more than half the 8.6 million So:Sh; advanced was for the purchase of tractors and water pumps. However, such loans are not available to small farmers, whose short term credit for operational purposes is generally supplied by commercial and savings banks. Government policy is to progressively increase the availability of agricultural credit both for investment and operational purposes.

Pricing and Marketing

Current policy aims at gradually reducing state intervention and leaving these functions to be increasingly performed by the private sector. However, the public sector will continue to regulate agricultural trade through the ADC (Agricultural Development Corporation) which will act as a buyer of last resort at a guaranteed minimum price and will continue to be responsible for storage of "institutional requirements" and emergency stocks. The overall aim is to provide more equitable prices for the producer. After several years of price controls, substantial increases have been noted since the revised policy in 1981 and again in 1982-83. The ADC will gradually change its role from price setter to "supporter and stabilizer" of prices closely adjusted to the international market for agricultural commodities.

One of the major aims of the policy measures described above is to stimulate private investment for the development of agriculture. Although local entrepreneurship exists, (as the Somali economy has always been private sector oriented) a statement of policy is needed so that the full scope of private sector activities can be clarified. A streamlining of the bureaucratic processes impinging on the private sector, including rationalization of taxes, tariffs, and subsidies, and better access to the essential inputs and financial incentives for increasing production are necessary for the better mobilization and utilization of private resources.

AGRO INDUSTRY CONSTRAINTS AND OPPORTUNITIES

"Supply side" Constraints

As already stressed, the most crucial factor in the poor performance of crop production has been the failure of Government to provide adequate price incentives to the producers. The following table demonstrates the decline in producer prices in real terms over the last 5 years,

thereby reducing both farmers' incomes and incentives to plant more crops. The decline in banana production was of particular concern because of its value as an earner of foreign exchange.

TABLE II

INDICES OF REAL PRODUCER PRICES FOR SELECTED CROPS
1976-1981

(1975 = 100)

	1976	1977	1978	1979	1980	1981
Bananas	117.0	116.6	106.0	85.6	58.7	84.5
Maize	95.7	108.1	98.3	79.4	79.7	62.0
Sorghum (white)	95.7	108.4	98.3	79.4	79.7	55.1
Rice	87.7	79.3	72.1	58.2	36.5	---
Cotton	105.2	103.1	86.4	75.7	54.8	44.3
Sesame	87.7	95.2	86.5	69.9	54.8	57.0

[source: IBRD]

Other factors which have contributed to the decline in crop production have been shortages of fertilizers, and lack of spare parts which have become increasingly short in supply as the balance of payments have been under increasing strain. As previously stated, the Government is very conscious of these problems and is taking action to alleviate them.

The inadequacy of public resources devoted to agriculture has been another important constraint. Although the 1982-86 five-year development plan has attempted to rectify this, it should be noted that over 20% of the funds allocated for agriculture are earmarked for the Bardhere Dam project, which is essentially infrastructural rather than agricultural in nature.

The US government's Commodity Import Program (CIP) is designed to help relieve some of these constraints by providing US dollar funds for Somali businessmen to purchase US equipment and supplies. The businessman has to deposit the Somali shilling equivalent in Somalia which provides a fund for local use. Other donor nations are being urged to set up similar programs to facilitate the import of critical spare parts, equipment, etc.

This lack of funds is further reflected in the decline of services at producer levels; roads and marketing infrastructure have been neglected and post harvest storage remains very wasteful.

Another key constraint is energy, particularly for irrigation (pumping) and processing. Diesel fuel for pumps is expensive and in short supply throughout the country. The Bardhere Dam project holds out the potential for critical new energy supplies for the Juba River project.

Public Sector Industries

Considering all the above, it is hardly surprising that the agro-processing industries have not thrived. This sector is dominated by some 15 state-owned enterprises designed mainly for import substitution purposes.

These include two sugar factories (SNAI) at Johar and JSP at Juba; a textile factory (SOMALTEX) utilizing imported as well as locally grown lint but now suffering from a shortage of the latter because of low producer prices; a fruit and vegetable canning plant (ITOP), also closed recently because of inadequate supplies of raw material; the Mogadishu milk plant where low prices for raw milk resulted in a decline in production from 3 million liters in 1978 to only 1 million liters in 1981; the Kismayo meat plant, another factory which suffered from a serious shortage of raw materials, in this case, animals, and was finally forced to close down.

In all these cases it is clear that efforts to impose low prices in order to provide cheap food, particularly in the cities, were a marked failure. In addition, management problems have beset nearly all Government sector projects. A system of fragmented managerial responsibilities and bureaucratic controls have not helped, but the scarcity of management talents and experience can only be overcome by greater efforts in management training or the willingness of Government to use foreign managers or management contracts, at least for the time being.

Private Sector

These conditions have led the Somali Government to look to the private sector for fresh initiatives and better mobilization of the energies of individuals and the available resources for development. Already there are indications of a rapidly growing interest by private individuals in farming. The 'new, progressive farmers', private businessmen who acquired wealth in other sectors,

now operate agricultural holdings from 50 to 500 ha. They are very receptive to new ideas and new crops, such as cashew, jojoba, and watermelons, which are presently being tried. New cropping patterns with grapefruit and mangos, bananas and papayas, maize intercropped with cowpeas -- under both dry and irrigated conditions -- and permanent rotations of sesame, maize and cowpeas, are also being explored.

Government too is showing greater foresight by adopting more realistic approaches to practical ideas for increasing production. One example is the World Bank-sponsored drought rehabilitation projects where former nomads and immigrants are being settled on large scale schemes at Kutun Warrey and Sablach, employing Australian dry land semi-mechanized practices of strip farming.

In the controlled irrigation areas of the lower Shabelli, plans are being considered for setting up a water authority with the help of producers to rehabilitate irrigation networks and impose water managements. In addition, there are hopes that the proposed Bardhere Dam project on the upper Juba river will improve the output from existing large-scale sugar and rice projects in the area and lead to the introduction of other large crop and livestock projects which are presently being planned.

Experience has indicated that if the economy is to grow, the private sector must play a greater role in industry as well as in agriculture. There is some evidence to suggest that the smaller private-sector manufacturing industries are more economically viable than the larger enterprises under Government or quasi-Government control. Encouraged by these signs, a number of local entrepreneurs have stated their preparedness and desire to invest in agro-related industries. They realize that revival of agricultural supply will call for an expansion in processing facilities and a redeployment of resources to cope with the opportunities which are emerging, both in the home market where consumer demand is rising, and for export.

POSSIBLE AREAS FOR ICD ASSISTANCE

ICD Criteria for Project Selection

ICD provides a non-commercial development service which draws upon the managerial and technological expertise of its members and other companies worldwide. This expertise is contributed to projects which ICD selects to support.

The Council is not a funding agency; it looks to host governments and cooperating client organizations (USAID, the UN System, etc.) to finance the travel, per diem, and other logistical and administrative costs related to the use of this expertise.

In order to make the most effective use of member resources, ICD imposes the following criteria in its selection of cooperative projects based upon the findings of reconnaissance missions or government proposals.

The project should:

1. Have a direct and significant relationship to priority national development goals.

2. Have a reasonable possibility of producing practical, tangible results in the short or medium term.

3. Have results which are clearly attributable to the use of industry expertise.

4. Have the potential for producing a multiplier effect and/or providing a catalytic influence in attracting additional resources to the project.

5. Have the potential for replicability in other developing countries.

6. Be requested by the host government and involve cooperation with other major development organizations in order to optimize the "additionality" of the industry expertise.

7. Involve cost-sharing arrangements with the government or client organizations covering logistical and appropriate ICD administrative charges.

8. Not duplicate or overlap significantly with the activities of other development organizations or compete with commercial consultants.

The mission was asked to review the Government's priorities for agro-industry development in Somalia and to explore the possibilities for ICD assistance, particularly in the edible oil industry. As will be seen from earlier chapters, although there have been many setbacks to development, there are now new opportunities and reasons for optimism, including:

- After consultation with the World Bank and IMF, Government has clearly set out its priorities for agricultural development to aim at food self-sufficiency and to improve standards of living through increased productivity and income-generating projects.

- The Government's decision to liberalize the economy and to encourage private initiative in economic growth. New, market-oriented price policies have already brought about an increase in agricultural production.

- Efforts by the Government to ensure that public sector projects are put on a sound commercial footing, including the use of management contracts, or joint ventures.

- Determination by all the major donor agencies to continue to assist infrastructural development projects.

Priorities for GOS/USAID/ICD Cooperation

With these factors in mind, the Mission believes that ICD may be able to assist the Government of Somalia with one or more of the following agro-industrial priorities:

(1) To help establish a commercially viable integrated edible oil industry, capable of achieving self-sufficiency in approximately 5 years.

(2) To assist in the expansion of the fruit and vegetable production, processing and packaging industry, with particular attention to the export market.

(3) To facilitate the availability of improved seed for farmers through support for the introduction and adaptation of high-yielding varieties of oil seed crops, of cereals, vegetables and other agricultural products of primary importance.

(4) To assist development of the livestock sector, especially through training and communications support for animal health.

Following is a summary of the primary considerations for each of these focal points.

THE EDIBLE OIL SUBSECTOR

Policy Issues

Government policy for the edible oil industry is clearly aimed at self-sufficiency at the earliest possible date; and agronomically speaking, there seems no reason why this should not be achieved within the next five years.

Current total consumption of edible oils is estimated to be 22-23,000 metric tons per annum. Of this, roughly a third (7,000 metric tons) is produced locally, mostly as sesame seed oil. The remaining two-thirds is supplied by imports of 15 to 17,000 metric tons per year, made up of a variety of refined vegetable oils, including sunflower oil, safflower oil and also rape seed, olive and corn oil from Europe and the United States.

It is estimated that the current per capita consumption of oil is on the order of 6 kilos per head per year, and FAO suggests that this demand would increase by about 4% per year if there were increased availability and more favorable prices. As already stated, there seems very little doubt that agronomically the potential exists for increasing local production of oil seeds by considerable amounts.

The first decision to be made is whether emphasis should be placed on overcoming the known agronomic problems of the most commonly grown oil seed crop, sesame, or whether available resources would best be concentrated on the adaptation of alternative oil seed crops such as sunflower, safflower and groundnuts. Alternatively, it might be expeditious to pursue both efforts simultaneously.

As regards processing, there are the alternative approaches of concentrating operations in the large factories in major towns, or developing the potential of the small oil expellers at the village level. The latter would have the additional benefit of being located near the source of production. Alternatively, it might be more effective to consider restructuring the industry by combining these two approaches.

Annex VII gives brief details and comments on edible oils used for cooking by the Somali housewife. However, on closer questioning of a number of consumers, it became apparent that there is some differentiation according to local tastes between oils used for cooking and edible oils which are consumed directly (i.e., similar to the Italian preference of using the best quality olive oil as an addition to pasta or salads; so the Somalis use sesame oil to add to their food, whereas other oils are used in the process of cooking). This preference puts sesame in a

class by itself. Since it is also used medicinally as a mild purgative, one is under the impression that the oil is an essential part of the Somali diet.

Although sesame oil is known to be the most sought-after and the most expensive of oils, it is not clear whether the high price of sesame oil is due to its relative scarcity (principally because of poor yields and loss of seed at harvest time), or whether consumer demand is essentially inelastic for this product.

Past experience has shown that sesame is particularly sensitive to price changes. When the Government tried to control prices, production immediately fell, and farmers reverted to producing just enough for their own needs, and for sale on the black market through private oil mills.

A careful market study will have to be carried out to examine the level of increased production which the consumer market will stand, without causing too drastic a fall in price levels, which would act as a disincentive to production.

This study should be included in the recommended market research on all edible oils, which is the first priority of a recent USAID feasibility study of the edible oil industry, outlined in Annex IV.

Oil Extraction Methods

Private Sector

Crude oil of a high quality has always been readily produced by the simplest of oil extraction methods -- by grinding the sesame seed and removing the clear oil off the top of the mass. This method is today employed in rural mills utilizing camels for power. Tree trunks and branches especially selected for their shape, are bound together in such a way that the camel harnessed to them will rotate around a central post thus grinding the seed. Oil derived from this process is stored in a central wooden container.

It is estimated that there were over 500 such mills operating in the country in the 1970's and quite a number still exist, but there has been a gradual change to mechanized mills, powered in the towns and villages by small petrol engines, and in Mogadishu by electric power from the main supply. These mills, which are all of the expeller type, process between 5-700 kilos of sesame seed per day, yielding between 130-140 liters of oil, with an extraction rate of 20-40%. Mills are thought to operate 180-200 days per year, depending on the availability of

sesame seed. Operating staff usually include an owner/manager, and an equipment operator who will work for a shift up to 12 hours.

Low production figures may sometimes result from poor equipment or operational inefficiency. However, unless the sesame seed is thoroughly sifted to remove dirt and other impurities, excessive wear can be caused to the machine, and often spare parts are not readily available.

Today the most popular machines used by Somali producers are Japanese. As the table at Annex V suggests, however, new machines from Taiwan are considered by some to be equally efficient if not better. In most cases, the expellers operate in conjunction with filter pumps which produce a good clear oil; however, lack of spare parts or knowledge of how to repair them can contribute to operational inefficiencies.

Several local businessmen are showing keen interest in entering the edible oil industry. One individual expressed his preparedness to run a spare parts and repair service for all the machines he supplies to rural operators. He is considering plans for importing over 100 Japanese machines which would be operated on loan or in partnership with farmer organizations in the villages; he is confident that a back-up service for spare parts and maintenance would assure profits for all levels of operations.

Another local entrepreneur interested in investing in this industry is considering the establishment of an edible oil factory, with an output of 5,000 tons per annum which would replace a third of the shortfall of 15,000 tons imported per year to meet the local demand for edible oil. He has decided to look at other alternative oil seed crops rather than the traditional sesame, (e.g., substitutes for imported cooking oils rather than high-grade eating oil.) He indicated that he would be prepared to extend credit to farmers to try sunflower and groundnuts in the Afgoi area where he is conducting trials on his own land.

It is therefore apparent that private sector entrepreneurs are interested in entering the oil seeds milling industry. It has thus far attracted the attention of several groups, including:

- small operators at the village level who charge a cash fee or retain a share of the oil;

- operators in the larger towns and cities, who purchase farmers' crops, and mill the seed by motor-driven expellers to produce oil which is sold directly to consumers;

- entrepreneurs prepared to invest capital in the bulk purchase of expellers and provide parts and repair services to insure operational efficiency;

- to those interested in a factory-type operation linked to farmer/producers on a contractual basis.

Public Sector Mill

While it is sobering to see the fate that has befallen Somalia's only public sector edible oil factory, it is encouraging to note the enthusiasm of those individuals mentioned above. This mill was established in Mogadishu in 1976 with an installed capacity of 7,000 tons per annum. In 1977 it was operating at 86% capacity. Production fell steadily over the next four years, despite attempts in 1981-82 to make better use of the machinery by refining crude oil received as food aid from Canada. In 1983 it was operating at approximately 1% of capacity. A recommendation to the Ministry of Industries to close the factory and to sell the plant, if possible, to private operators was made by the factory manager.

Failure of the plant is attributed to the use of second-hand equipment which was difficult to maintain, and to the lack of trained managers and technical personnel. The primary cause, however, was probably the inflexible price structure which required the factory to offer low prices to farmers for raw materials, in order that the price of oil be kept down to the Government determined market price.

A study has recently been completed by the Arab Industrial Development Organization to determine how this factory can be converted into a more profitable enterprise. However, it may be advisable to consider the possible role of this factory in the broader context of a restructured edible oil industry. It might have a role as a central oil refinery as it is equipped for solvent extraction and could therefore remove oil from locally produced oil cake prior to being used as animal feed. It also has buildings to house a workshop for remachining working parts for imported expellers, which need to be replaced every 2-3 months.

Careful thought will have to be given to whether this enterprise can remain entirely under Government control and still be competitive with private sector operations in this field, or whether it might be run as a joint venture. If the latter option is chosen a number, if not all, of the major private oil producers might be shareholders.

Production of Oil Seed Crops

Sesame must be one of the earliest crops cultivated for oil production. It has been used for centuries for cooking, for medicinal purposes, in cosmetics, for anointing, for soapmaking and even for illumination. It is indigenous to Somalia and remains the major oil seed crop grown by farmers both under rain fed and irrigation systems.

There are a number of agronomic problems connected with growing this crop, but generations of farmers have adapted their practices to combat many of these. For instance, although the crop is drought-resistant, the moisture content of the soil at the time of planting is critical to good germination. The relative humidity at flowering time is an important factor in obtaining high yields which perhaps explains why better crops are obtained in the "Dayr" season (September to November) which usually has less precipitation. However, the major factors causing low yields are the poor genetic structure of the local varieties and uneven ripening in the crop which is closely related to losses from shedding in the fields.

Sesame can easily be rotated with sorghum and maize, with which it is sometimes intercropped; sesame usually follows maize in the rotation. It is a labor intensive crop and it seems that every settled farmer (and some nomads if they settle long enough) maintains a small plot of sesame which is carefully harvested and bound into sheaves resembling bee-hives, where the seed is allowed to mature and dry in the sun. After threshing and winnowing, each farmer takes a small quantity of seed to the local mill, where it will be ground to produce oil for domestic consumption. The remainder of the crop is either sold at the same oil mill or to itinerant buyers who traditionally purchase small quantities which are bulked together and transported to mills in Mogadishu.

As far as can be ascertained, research on sesame production by the Department of Agriculture Research Station at Afgoi, has consisted mainly of trials concerned with fertilizer requirements, time of planting and with problems associated with intercropping. No work appears to have been done on selection and breeding of indigenous varieties, nor on the introduction of new high-yielding strains of the non-shattering type.

A brief summary of research in other parts of the world is given in Annex III. Note that there has been considerable interest shown in Latin America -- particularly Venezuela, Mexico and Nicaragua -- and in the United States, in solving some of the technical problems of growing this

crop. Interest shown by these countries is more related to sesame seed for confectionary purposes rather than for sesame oil. In India, however, the interest is more concentrated on oil production, while Japan's interest is mixed. In other African countries (Egypt and the Sudan) sesame has been viewed not only as an oil seed crop but as a source of protein-rich flour derived from dehulled sesame seed. However, it is in Nigeria that most of the interest seems to be concentrated on breeding and genetics. This source of information (most likely through the IITA -- International Institute of Tropical Agriculture at Ibadan), could provide useful suggestions for new varieties suitable for trials in Somalia. Additionally, it should be noted that variety trials are presently being carried out by the UK Overseas Development Administration (ODA) in Tanzania.

As previously mentioned, ISNAR is assisting the Government of Somalia in coordinating all research activities. ISNAR is aware of the importance of sesame to the country's agriculture and the need to redesign the research program to develop improved varieties which will meet farmer demands. From discussions with the ISNAR Senior Research Officer, the idea evolved that a senior agronomist should be assigned to develop new high yielding varieties at Afgoi over the next three years.

A case can also be made for proposing to ICRISAT (International Crops Research Institute for the Semi-Arid Tropics) that Somalia is well located to become a world center for sesame research, since this crop is not covered by ICRISAT activities in any other tropical country.

Alternative Oil Seed Crops

Of the alternative oil seed crops referred to earlier, groundnuts are already grown by a number of farmers; this crop is usually produced to be eaten as nuts and not as oil. Groundnuts are not as drought-resistant as sesame, nor have sufficient farmers had experience of growing them for any appreciable increase in the production of this crop to be expected unless special efforts are made to encourage it. However, for large scale schemes there is a wealth of knowledge about the mechanization of groundnut production, the most suitable varieties for different conditions, fertilizer requirements, harvesting and storage. Judging by the attitude of the Somali Government in the past, it would seem that it has always been more economical to import unshelled groundnuts from neighboring African countries for milling and refining into vegetable oils, rather than to encourage home production.

Cotton seed is the other most common oil seed processed as an edible oil in Somalia. However, its availability fluctuates in accordance with trends in the textile industry as seed stocks are required for replanting and only the surplus is available for grinding into oil. It would be unrealistic, therefore, to consider this as a crop which can be reliably expected to contribute much to an expanded oil industry.

Coconuts are the third potential source for edible oil in Somalia. Because Somalis prefer to use their coconuts green for coconut water, only small amounts of copra are produced (mainly in the south). There is, however, considerable scope for developing coconuts as a major crop along the coastal zone; but this would be a long term project involving considerable capital expenditure, and at least 8-10 years, even with the best varieties, before an appreciable return could be expected.

Sunflower, Safflower and Soyabean are three crops recently introduced to Somalia. All are readily adaptable to large-scale mechanized agricultural production schemes, but are relatively unknown to local farmers who may or may not find it easy to fit them into their rotations. None can be consumed raw -- as opposed to groundnuts -- and both safflower and soyabeans have to go through a refining process before the oil can be used for cooking purposes.

Experiments with sunflower have shown that it is particularly susceptible to damage by birds at harvest time. Safflower, by the prickly nature of its fruit, necessitates mechanical rather than manual harvesting. Nevertheless, the new "progressive farmers" who can afford to operate on sufficiently large areas may find it attractive to explore the potential of these crops. It appears that sunflower shows the greatest chance of yielding a profitable return as a crop; it also does not have the processing problems of safflower or soya, and is already popular as an imported cooking oil.

In conclusion: it is suggested that while the greatest emphasis should be placed on finding ways and means of increasing the production of sesame -- the country's most commonly grown oil seed crop -- attention should continue to be given to exploring ways in which groundnuts and sunflower can be integrated into the local farming system.

OTHER AGRO-INDUSTRY PROSPECTS FOR TCD ASSISTANCE

Fruit and Vegetable Production, Processing, Packing, and Marketing

Despite the recent closure of the ITOP packing and processing plant near Afgoi there does seem to be considerable potential for developing this industry in Somalia. Citrus, in particular grapefruit, grow particularly well in the flood plains of the Shabelli River, and if and when the Bardhere Dam is completed, there will obviously be scope for developing similar plantations in the Juba valley as well.

ICD might consider assisting the development of this industry by arranging for one or more members with experience in vegetable and fruit processing, to visit Somalia and to advise the Governemnt on the management structure and technical guidelines necessary for re-establishing the ITOP plant. This might take the form of a joint venture could be considered, in which the producers and the Government are involved with a foreign technical partner. Before this can be discussed, it is advisable that a thorough examination be made of both production and market potential, so that this plant can be run at full capacity. A clear statement on the objectives of both Government and producers would be helpful in determining which member companies would be most appropriate for this activity.

Seeds Industry

There is ample scope for organizing a regular supply and distribution system for improved seed to farmers and growers. Infrastructural development through the FAO projects is still at an early stage and until this can be developed further farmers will need assistance in gaining access to better seeds through imports. This could be organized by ordering in bulk or through franchise agreements with foreign seed companies who have developed seeds appropriate to the Somali environment.

ICD, through its contacts with the international seed industry, could play a catalytic role in suggesting suitable partners for such a venture. In the meantime, thought might be given to training local staff in the seed technology required for follow-up services; ICD through its Management Training Program may be in a position to place Somali trainees with foreign companies for practical in-service training.

Animal Production and Health Activities

It is estimated that the livestock sector has a growth rate of 2.7% per annum. This has been achieved despite years of drought, resulting in severe depletion of the national herd. Subsequent years of good rainfall have helped to

replenish herds. The raising, marketing and export of live animals is entirely in the hands of the private sector. Prices are not subjected to Government control and have generally kept up with inflation to meet the growing demand in neighboring Saudi Arabia. The main constraints to the growth of the livestock sector aside from periodic droughts and the limited capacity of the range lands to sustain larger herds -- is the lack of veterinary services and trained staff. ICD might consider organizing an internship program similar to that operating in the seeds industry. This could provide training with well-known international companies, both in the USA and Europe, in various aspects of veterinary hygiene and laboratory technology. Requests would have to be quite specific as such training would be of a short-term nature; designed for those who are already at an agreed level of technical proficiency in their own area of expertise.

ICD might also recommend that the Government encourage international companies to test and adapt their techniques and products under field conditions in Somalia. This should be combined with a more liberal policy for marketing animal health products by the private sector.

The trials recently carried out by the Ciba-Geigy representative on new ways to control tick-borne disease is an excellent example of what can be achieved by veterinary specialists in collaboration with the Government livestock department to solve practical problems under specific circumstances.

The edible oils industry is also closely linked to the animal feeds industry. Increasing production of edible oils to the point of self-sufficiency will mean a tripling or quadrupling of the quantities of oil seed cake available for animal feed. Therefore, a study should be made as early as possible on the value of this by-product for export and/or for expanding local livestock production through intensive (feed lot) and semi-intensive (small farmer) schemes, for both sheep and cattle. The data should relate to considerations for the meat packing and processing operations at Kismayo and Mogadishu, which may become viable with such changes. If large quantities of protein-rich animal feeds become available, new sources of high-energy feeds will also be needed. By-products from other agro-industries such as citrus and vegetable pulp from the canning factory, substandard bananas, and potential increases in sugar cane and rice production in the Juba Valley might contribute to supply requirements.

[illegible]

The mission recommends that initial cooperative activities should concentrate on assistance to the national edible oil industry.

This assistance would have three phases:

1. Research to clarify options and provide additional essential information.

2. Determination of a strategy for achieving national self-sufficiency in edible oils through a commercially viable national industry.

3. Implementation of the strategy.

Research

While considerable research has alredy been completed on the edible oils industry, two areas need further work to assist the workshop process.

a) Market research to provide a more precise description of the national market including the type, volume, and origin of imports and an analysis of consumer preferences for the various edible (eating and cooking) oils. The potential growth rate of the market should also be reviewed against various possible price policy arrangements.

   It is recommended that USAID commission this research as soon as possible as a follow-up to the study done by Glenn Patterson and Hassan Noor Fahiye.

b) Preparation of an agribusiness system analysis of the edible oil industry as it now exists, describing interrelationships between producing, processing, storage, marketing and other typical functions of such a system. The agribusiness system analysis would be a primary working document for the workshop.

   ICD would assist USAID in preparing this analysis.

Developing a National Edible Oils Industry Strategy

The strategy would be the result of a workshop which would bring together officials from appropriate Government ministries and other public sector organizations with local business leaders interested in the edible oil industry, including other private sector representatives. Experts

from international development organizations (such as USAID, ISNAR, UNDP, FAO, IBRD, and TPI) would also participate as advisors and resource persons.

ICD would create an advisory group of senior experts from member companies with expertise in all stages of the edible oil industry. This advisory group would help guide the workshop discussion and assist in formulating a plan of action and related recommendations.

The workshop process would utilize the agribusiness system analysis in evaluating the various options in raw material production, processing, distribution and marketing, within the context of commercial viability on an integrated basis. The consensus developed through this process would also provide the basis for workshop recommendations in such areas as policy revisions; credit and other incentives; technology transfer; training and management development; investment promotion; further market research and promotion.

Implementation

The workshop report and recommendations would provide a basis for a continuing public/private sector partnership in achieving the agreed goals.

ICD would remain available to GOS and USAID for assistance to specific follow-up activities. Based on similar experience in other developing countries, it may be advisable to maintain the ICD advisory group as an informal network which would be available to provide additional guidance and assistance in the follow-up phase.

Modalities for Cooperation

The following modalities were discussed with USAID, Mogadishu, and in general agreed as the basis for future cooperative activities:

1. Official request - Consistent with ICD's operating procedures, any cooperative project resulting from this reconnaissance mission would be officially requested by the Government of Somalia and endorsed by USAID.

2. Project plan - Based on the request, ICD would propose a project plan to USAID including objectives, methodology, staffing, cost sharing and reporting functions.

3. Cost sharing - The following guidelines for GOS/USAID/ICD cost sharing in any project were generally agreed as follows:

Industry expert time	Contributed by ICD
International and local travel for ICD experts, senior associates and secretariat	USAID/GOS
Local per diem including stopover expenses as required	USAID
ICD administrative charges	USAID

4. Follow-up activities - Additional ICD inputs (industry experts, senior associates, or secretariat) would be arranged according to the above principles.

ANNEX I

1984 MISSION ITINERARY

25 September Modagishu	0745	Mohammed Ali Sherrieh USAID Program Assistant
	0800	Fred Witthans USAID Mission Economist
	0815	G. LaBombard USAID Supply Management Officer (CIP)
	0900	Hussain Dimbil Alfa Laval Distributor
	1100	Abudullahi Sheikh Ali Director of Planning and Training, Ministry of Agriculture
	1230	Louis Cohen USAID Mission Director, also USAID officers
		Flyn Fuller, Acting Chief of Agricultural Division
		Kenneth Randolph, Livestock Project Manager
		Fred Witthans
	1400-1700	Field trip to Afgoi Agricultural Research Station with:
		Glenn Patterson, Consultant
		Hassan Noor Fahrye, Consultant
		Abdelkadir Mohammed, Director of Research Station

		Haji Hassan Aboker, Vice President of Afgoi Vegetable and Fruit Cooperative
	1700	Arab Essa, Chairman, Arab Essa Company
26 September Mogadishu, Juba	0800	Dr. Hussain Gibin, Chairman of JSP
	0800	Field trip to Juba Suga Project (JSP)
	1230-1730	ERM Currey, General Manager Brian Dyer, Agricultural Manager
27 September Mogadishu	0800	L. Hayles, Acting FAO Representative
	0900	Hashi Haji Weheliye, Manager, Haji Weheliye & Sons Co, Pte. Ltd.
	1000	H.W. Fullerton, British Ambassador
	1100	R.L. Smith and Guy Denton, Utah State University Team on Agricultural Extension Service Project
	1200	Omar Hashi Abdulla, Agricultural Chemical Manager, Ciba Geigy
	1400	Visit to small-scale oil mills in Mogadishu
28 September Mogadishu, Kuntu Warrey		Field trip to ITOP and Kuntu Warrey to see semi-mechanized dry land farming experiments operated in conjunction with resettlement project

		Osman Rodole, Project Agronomist
29 September Mogadishu	0800	FAO Office to Review Documents
	0900	Dr. Mahamood Abdi Nur, Vice Minister of Agriculture
		Hamid Khawen, External Relations Officer, Ministry of Agriculture
	1015	Hassan Abdullahi Alaso, Manager, Public Sector Oil Mill
	1100	Robert Borthwick, UNDP Resident Representative
30 September Mogadishu	0900	Fred Witthaus, USAID Ministry Economist
	1000	Abdullahi Mohammed Bullo, Director of Private Sector Industries Ministry of Industries
		Alan Eames, UNIDO Project Manager
	1200	L. Cohen, Director, USAID Mission
		G. Nelson, Deputy Mission Director
		Fred Witthans, Mission Economist

ANNEX II

The following table shows the oils seed crops currently being grown in Somalia, including the average oil seed content, estimated local production levels and common oil uses.

For purposes of comparison, two of the most common edible oils imported for direct consumption are included. It should be noted that efforts have been made to reduce the volume of imports of edible oils by importing copra and unshelled groundnuts which can be processed into oil at the Mogadishu edible oil factory.

The fixed oils referred to in the table below are those which do not evaporate on exposure to air, e.g., sesame, groundnut, and coconut oil, as opposed to volatile oils which do evaporate. Fixed oils can be extracted from the seeds by crushing, by applying pressure using expellers, and by solvent extraction with chemicals, for those oils which need to be refined before they can be consumed, e.g., soyabean oil, cotton seed oil, and rape seed oil. Vegetable oils can be further sub-divided into several categories: drying oils, such as safflower oil which like linseed can be used in varnishes and lacquers; semi-drying oils such as sesame and sunflower oil, which can be consumed as crude oil and like olive oil are considered the best salad and cooking oils; non-drying oils used mainly as lubricants, although some, such as groundnut oil, also have a large share of the edible oil market; and lastly vegetable fat such as cocoa butter, shea butter and coconut oil.

PRODUCTION OF FIXED VEGETABLE OILS AND FATS IN SOMALIA

CROPS	AVERAGE OIL CONTENT	LOCAL PROD'N 1983 (TONS)	REMARKS
Sesame seed	45%	59,000	Most commonly grown oil crop under rainfed and irrigation. Best of the edible oils; also used in medicine and cosmetics.
Sunflower	15-20%	N.A.	Presently under trial in dryland crop rotation; high quality edible oil also used in soap and paint.
Safflower	25-30%	N.A.	Under trial in dryland crop rotation. Used as edible oil, also in varnishes and lacquers.
Groundnuts	40-45%	2,600	Mainly consumed locally as nuts; also imported for processing. Used in soaps.
Coconuts	60%	N.A.	Crop usually consumed at "green" stage for the water. Little copra produced; some imported for processing. Used as edible oil and for soap and candlemaking.
Cottonseed	15-20%	4,000	A by-product from the textile industry; most seed needed for planting. Used for edible oil, soap, lubricants and paints.
Soyabean	20%	Imported as oil	Limited crop trials in Somalia; used for edible oil, soap, candlemaking and varnishes.
Rapeseed	30-35%	Imported	Not grown locally; used

as oil for edible oil, soap and lubricants.

ANNEX III

Sesame - Summary of Research (extract from T.P.I. Report)

6.(1).11 RESEARCH ORGANIZATIONS AND PROJECTS

6.(1).11. Introduction

Sesame is an important crop in many developing countries. However, it has not received a great deal of attention and expenditure on research in most of the developing countries has been very small. In the past decade, or so, most of the research on sesame has been carried out in India, Venezuela, and in certain African countries. Research efforts in the USA and Japan appears to have decreased in recent years as has interest in the crop.

83. There are numerous institutions which have been reported as carrying out research on sesame during recent years and it is difficult to select the more important of these, but the following list indicates the type of research currently being undertaken, but it is by no means exhaustive:

84. Sesame seed is widely grown, and thrives under a variety of conditions in the tropics and subtropics. Of the annual oilseed crops, only groundnuts, in the developing countries covers a greater area. Because of its drought resistance it is a crop of particular value to semi-arid areas and in Africa is frequently grown in areas which are too dry for groundnuts or where groundnut yields are poor or erratic because of periods of drought.

(i) India -

(a) Punjab Agricultural University, Ludhiana: this Centre has been investigating fatty acid changes in sesame seed during ripening and germination. The Research Station at Gurdaspur has been studying the effect of sowing dates on yields, and carrying out spacing and fertilizer trials.

(b) Jawaharlal Nehru Agricultural University, Jabalpur, Madhya Pradesh: has been studying the variability of morphological characters, crop protection and heterosis.

(c) Uttar Pradesh Institute of Agricultural Sciences, Kanpur: this Institute has been investigating the effects of growth substances and disease control.

(d) Indian Agricultural Research Institute, (IARI), New Delhi: this Institute has been carrying out genetic studies, disease control and breeding.
(e) Agricultural College and Research Institute, Coimbatore, Tamil Nadu: this Centre has carried out research on growth, yield, nutritional problems and hybridization.

(ii) Venezuela -
(a) Centro de Investigaciones Agronomicas, Maracay: has investigated various agronomic aspects of the crop, e.g., sowing depths, water relations and rotations in addition to seed composition.
(b) Estacion Experimental de Araure, MAC, Portuguesa: this Station has carried out studies on the effect of artificial drying on seed viability and quality and crop protection measures.

(iii) Mexico -
Instituto Tecnologico de Monterrey, Nuevo Leon: this Centre has studied the effects of y-irradiation on germination and capsule number.

(iv) United States -
(a) Department of Soil Science, California University, Riverside: this Institution has investigated factors affecting growth, germination and oil composition.
(b) Agricultural Experiment Station, Georgia: this Station has been studying insect and disease resistance and growth habits.

(v) Japan -
Hirosaki University, Aomori: has been investigating the effects of growth substances on sesame.

(vi) Pakistan -
(a) Agricultural Research Institute, Tandojam: this Institute has been carrying out trials and studying the effects of irradiation.
(b) Ayub Agricultural Research Institute, Lyallpur: has been concerned with breeding trials.

(vii) Arab Republic of Egypt -

(a) Faculty of Agriculture, Khartoum University: this Centre has been investigating disease control, genetics, oil and protein development in the seed, and yield correlations.

(ix) Nigeria -

(a) Agricultural Research Station, Mokwa: this Station has been carrying out studies on growth, spacing, plant density, sowing date, crop protection, genetics and breeding.

(b) Institute of Agricultural Research, Samaru: this Institute has had a research programme similar to the Research Station at Mokwa.

ANNEX IV

RECOMMENDATIONS

Please note that these recommendations are not presented in priority order.

[extracted from Prefeasibility study of the Edible Oil Industry of Somalia, by Glenn Patterson and Hassan Noor Fahiye, September 23, 1984]

A. Review present progress on current activities to increase oil seed production and assess future plans to determine constraints that may prevent the objectives from being met. Determine inputs needed to overcome constraints;

B. Determine cost-profit margins for farmers. Devise pricing systems which will encourage farmers to increase production.

C. Review feasibility study done for public sector oil factory to determine how adequately it addresses the problems of low productivity and competitiveness with the private sector. If research findings are inadequate conduct a study;

D. Conduct market research to determine up to date consumption levels, uses and overall demand for all edible oils;

E. Carry out market research to determine acceptability of edible oils not presently familiar to Somali customers. For those not acceptable explore strategies to incorporate in the diet through processed foods such as ice cream, salad dressings, confectionary products, etc.;

F. Explore potential of using expeller equipment to produce castor and other oils not being processed. Develop plans for uses of these oils.

G. Indentify ways to prevent imported oils, from reducing local oil mill processors profit margin to unacceptable levels, and their inability to purchase raw materials, equipment, spare parts, fuel, etc.;

H. Explore feasibility of importing raw oil seeds acceptable to Somalis to better utilize private sector operations. The importation of crude oil to be processed at the public sector mill should be explored, to make up shortages from local production.

I. Conduct a needs/resource assessment of the private sector oil mills to determine specific reasons for low production of the milling operation only. From this provide technical assistance and training on how to operate, maintain and repair the equipment and improve yields;

J. Survey existing uses of presscake to determine cost effectiveness of using solvent extraction to remove additional oil before feeding to animals;

K. Determine feasibility of a small cooker-extruder operation to obtain oil from imported unmilled rice bran.

L. Determine feasibility of increasing production and diverting groundnuts and coconuts to oil extraction.

ANNEX V

TYPE, NUMBER, LOCATION AND PRODUCTION OF OIL MILLS IN SOMALIA

TABLE D:

Oil Mill Type		Number	Location	Approximate Production (quintals per 12 hour shift)
Hander (a)	H 50	40-50	Mogadishu	3-4
		30	Other Regions	3-4
	H 50	20	Mogadishu	3-4
	H 54	110	Mogadishu	6-7
		50-60	Other Regions	6-7
	X 100	10	Mogadishu	7-8
Taiwan Made (b)		2	Mogadishu	7-8 or more
		2	Afgoi	7-8 or more
Italian Made		1	Mogadishu at Edible oil Factory (c)	Not known
Animal Powered		4	Mogadishu	1-2
		26	Other Regions	1-2

a) Made by Hander Oil Machinery Corp., Osaka, Japan
b) Made by Ching TIEN TA. INDUSTRIES CO. Limited, TAIPEI, TAIWAN
c) There are 4 other expellers in the oil factory but information was not available on origin or production.

[extracted from Prefeasibility Study of the Edible Oil Industry of Somalia by Glenn Patterson and Hassan Moor Fahiye, September 22, 1984]

'44'

Industry Council for Development

21 November 1984

Mr. Louis Cohen
Chief of USAID Mission
Mogadishu
Department of State
Washington, DC 20520

Dear Mr. Cohen:

Attached is the report of our reconnaissance mission carried out at your request in September. The report covers several agro-industrial priorities which Mr. Gale and I explored with the help of your associates during our week in Somalia. I hope that our text accurately reflects the agreement which we reached with you on possible Government of Somalia/USAID/ICD cooperation.

The data used in our report was drawn from existing documents and interviews. We would appreciate your advice on any inaccuracies or other changes which may be advisable in the text.

I am distributing this report to my Board of Directors for their review at our next Board meeting, which will be on 4 December in Rotterdam. If the Board agrees with the action we have proposed, I hope we can work out a project plan with you for implementation early next year.

I am sending this letter and report via Mrs. Sakiko Fukuda-Parr of UNDP, who is leading the IBRD/UNDP technical cooperation evaluation team in Somalia. In view of the team's work, I also have shared a copy of our report with her on an informal basis.

I look forward to having your views on our report.

Best regards.

Sincerely,

Walter W. Simons
Executive Director

WWS:dlp
cc: Ms. C. Mock w/Attachment
Ms. S. Fukuda-Parr w/Attachment
Mr. T. E. Gale w/Attachment

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